Medical and sanitary reports of the native army of Madras for the year 1873 : framed on the weekly an annual returns, on the reports of regimental medical officers, and on the inspection reports of deputy surgeons-general of the Indian Medical Department.

MEDICAL AND SANITARY REPORT

OF THE

NATIVE ARMY OF MADRAS

FOR THE YEAR

1873.

FRAMED ON THE WEEKLY AND ANNUAL RETURNS, ON THE REPORTS OF REGIMENTAL MEDICAL OFFICERS, AND ON THE INSPECTION REPORTS OF DEPUTY SURGEONS-GENERAL OF THE INDIAN MEDICAL DEPARTMENT.

(ALL STATISTICAL INFORMATION IS GIVEN IN THE TABLES AT THE END.)

MADRAS:
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1875.

ERRATA.

Page 6.—Statement XVI., line 7, for "Mysore," *read* "Nagpore."

Page 150.—For "31st Regiment Light Cavalry," *read* "31st Regiment Light Infantry."

Pages 194 and 196.—For "Statement showing the Sickness and Invaliding, &c.," *read* "Statement showing the Sickness, Mortality, and Invaliding, &c."

Page 209.—Column 10.—For "Deaths during 1872," *read* "Deaths during 1873."

INDEX.

[*The Regiments are placed as they stood in the Army List on the* 31*st December* 1873.]

CENTRE OR PRESIDENCY DISTRICT.

NORTHERN DISTRICT.

SOUTHERN DISTRICT.

DISTRICT OF MALABAR AND CANARA.

MYSORE DIVISION.

CEDED DISTRICTS.

HYDERABAD SUBSIDIARY FORCE.

NAGPORE FORCE.

BRITISH BURMAH DIVISION.

BENGAL PROPER.

TROOPS SERVING IN SAUGOR DIVISION, BENGAL.

STATISTICAL TABLES.

OFFICE OF SURGEON-GENERAL, INDIAN MEDICAL DEPARTMENT,
FORT ST. GEORGE, 14*th November* 1874.

No. 520.

FROM

THE SURGEON-GENERAL,
INDIAN MEDICAL DEPARTMENT,
Fort St. George,

TO

THE SECRETARY TO GOVERNMENT,
MILITARY DEPARTMENT.

SIR,

I HAVE the honor to submit the Medical and Sanitary Report on the Native Army of Madras for the year 1873.

2. *Seasonal phenomena.*—There was nothing sufficiently worthy of notice during the past year in the seasonal phenomena of the Presidency to call for any special remark. Seasonal phenomena.

	Inches.
1870...	... 45·30
1871...	... 45·53
1872...	... 52·69
1873...	... 41·26

The average rainfall for the Madras Presidency was considerably lower than previous years. It will be seen from the tabular statement in the margin that the mean quantity registered for 1873 was only 41·26 inches.

The greatest fall in the provinces of the Madras Presidency was registered during the prevalence of the south-west monsoon in the districts of South Canara and Malabar, where it amounted to 113·8 inches. The smallest quantities fell in the Southern Districts of Madura and Tinnevelly, where it did not amount to more than 24 inches during the year.

The following tabular statement shows the principal meteorological phenomena in places at or near cantonments occupied by portions of the Native Army. Meteorological phenomena at certain stations.

STATEMENT I.

Station.				Temperature of Shade.						Temperature outside.						
Position.	Name.	N. Lat.	Altitude.	Highest in the year.	Lowest in the year.	Mean maximum.	Mean minimum.	Mean.	Mean range.	Highest in the sun.†	Lowest on the ground.	Mean maximum.	Mean minimum on ground.	Mean humidity.	Rainfall.	Prevailing wind.
			Feet.													
Inland..	Trichinopoly.	10°20	236	106·7	60·1	92·4	73·7	81·4	18·7	122·0	51·9	106·2	70·6	66	40·46	S.
Do. ..	Bangalore..	12°57	2,949	969	48·4	84·1	64·2	72·6	19·9	111·6	40·8	97·7	61·6	66	27·6	S.
Do. ..	Bellary ..	17° 0	1,600	110·1	52·0	94·7	70·5	80·0	24·2	122·5	46·8	104·6	67·9	50	20·9	S.
Do. ..	Secundera-bad ..	17°28	1,800	106·3	47·9	89·6	68	77·6	21·6	126·6	27·5	107·2	61·9	66	21·21	S.
Do. ..	Nagpore ..	21°15	939	116·0	43·5	93·1	67·9	82·3	25·2	..	..	..	..	47	30·26	E.
East Coast.	Madras ..	13° 4	Sea level ..	106·3	60·9	90·8	74·7	80·9	16·0	117·3	52·2	103·4	71·3	72	51·8	S.E.
Do. ..	Masuli-patam ..	16° 9	Do. ..	108·0	60·3	90·3	74·4	81·0	15·9	122·9	51·7	102·6	69·9	70	30·44	S.S.E
West Coast.	Cochin* ..	9°58	Do. ..	936	68·1	..	..	..	..	..	64·2	..	..	..	..	S.S.E

The highest temperature in the shade observed on any one day was 116° F. at Nagpore, while at Cochin the thermometer never rose above 93°·6 F. The highest average temperature all the year round was at Bellary, where the maximum thermometer registered 94·7° F. High day temperature in the shade.

* Eight months only. † Freely exposed.

Low night temperature.

The lowest observations in the shade were registered at Bangalore, which has an elevation of 2,949 feet above the sea.

Outside temperature. Range of temperature.

The highest and lowest outside temperatures were registered at Secunderabad, being 126·6 F. in the sun, and 27·5 F. at night outside, nearly 3 degrees below freezing point. This low night temperature is of common occurrence in January at that station. The range of temperature at the inland stations is great compared with those on the coast.

Humidity.

For dryness of the atmosphere, Bellary and Nagpore are very remarkable. The mean humidity of Bellary was 50, while that of Nagpore 47, while that of Madras was 72.

Necessaries of life.

Necessaries of life.—The necessaries of life were fairly abundant. The diminished rainfall in southern portions of the Presidency, in South Arcot, had the effect of increasing the price of rice and other grain. The total failure of the rainfall in parts of Bengal tended also to increase the price of food towards the end of the year.

Plan of the report.

Plan of the Report.—The statistics for this report have been compiled as in former years from the Annual Regimental Medical Returns (W. O. F. 298), in which are included the total strength, sickness, and mortality of the respective corps, whether present or not at head-quarters.

This report will, therefore, contain—

1*st*.—The health statistics of the entire Native Army serving in the Madras Presidency, Central Provinces, Burmah, and Bengal.

2*nd*.—The health of the different divisions of the army.

3*rd*.—The sickness and mortality of each station garrisoned by Native Troops.

4*th*.—The health state of individual regiments.

5*th*.—The health of troops marching.

6*th*.—Remarks on such sanitary matters as have a special bearing on the health of the Native Troops.

Strength of the Army according to the Adjutant-General.

Strength of the Army.—According to the returns kept in the Adjutant-General's Office, the Native Army on the 1st January 1873 was 31,233 strong, and on the 31st of December it was 31,015, showing a decrease during the year of 218 men. This decrease is accounted for in the following way :—There were 1,336 recruits enlisted and 29 men obtained in other ways ; while on the other hand there were 963 men invalided, 308* deaths, and a decrease of 312 from other causes.

Average strength from the Medical Returns.

STATEMENT II.

Years.	Strength.		
	Present.	Absent.	Total.
1870...	...	...	29,253
1871...	28,702	1,247	29,949
1872..	28,772	1,321	30,093
1873...	28,162	1,493	29,655

The average strength of the army obtained from the Annual Medical Returns for 1873 is 29,655, of which number 28,162 were present and 1,493 absent.

These figures are contrasted on the margin with the average of the previous three years. The number " absent " has considerably increased.

Distribution of the Force.

Distribution of the Force.—The average strength of Native Troops serving in the different military commands of the Madras Army is shown in the margin. The largest number were stationed in the Presidency Division, and the smallest in the Ceded Districts. A single corps was serving in Bengal.

STATEMENT III.

Military Command.	Average Strength present.	Military Command.	Average Strength present.
Presidency	3,499	Nagpore Force ...	2,959
Northern	2,658	British Burmah ...	2,482
Southern	3,216	Saugor Division ...	3,244
Malabar and Canara...	1,927	Bengal	679
Mysore	2,745		
Ceded Districts ...	1,526	Total ...	28,162
Hyderabad Subsidiary Force...	3,227		

* The differences between the statements of the total deaths shown in the Adjutant-General's Return and the Medical Returns of this office is caused, 1st, by the exclusion from the latter of the deaths of Native Officers ; 2nd, by the following corps not being included :—Head Quarters and Right Wing 15th N. I., 20th Brigade R. A., (Native), Heavy Field Battery (Native) ; 3rdly, the Adjutant-General includes in his return certain deaths occurring in 1872, the reports of which were not received in his office till 1873.

STATEMENT IV.

Years.	Admitted.	Daily Sick.	Total Deaths.	Invalided	
				For Discharge.	For Sick Leave.
1870 ...	20,104	768	411	712	301
1871 ...	21,417	771	334	510	560
1872 ...	29,104	895	370	520	670
Average	23,542	811	372	581	510
1873 ...	24,633	820	274	578	540

Health of the Troops.

Health of the Troops.—The total admissions into hospital during the year 1873, as will be seen from the table on the margin, was 24,633, the daily average sick was 820, and the total deaths 274, of which 109 died out of hospital. There were 578 men invalided for discharge the service, and 540 sent away for change of air.

Health contrasted with former year.

These figures contrast favorably with those of the year 1872; the admissions into hospital in 1873 being 4,471 less, and the deaths show a decrease of 96.

It will be observed, however, that the rates of sickness, although lower than those of 1872, are higher than the average of previous years—a fact to be attributed to the continued, although decreased, prevalence of the epidemic of dengue fever referred to in last year's report, and which continued in several divisions of the army. The rate of mortality is considerably lower than past years. There has been an absence of serious disease during the year, and the health of the army may be considered to have been good as contrasted with bygone periods.

STATEMENT V.

Years.	Percentage to Strength.				
	Admissions	Daily Sick.	Total Deaths.	Invalided	
				For Discharge.	For Sick Leave.
1870 ...	68·72	2·62	1·40	2·43	1·02
1871 ...	74·62	2·68	1·11	1·70	1·86
1872 ...	101·15	3·11	1·22	1·72	2·22
Average.	81·49	2·80	1·24	1·95	1·70
1873 ...	87·46	2·91	·92	1·94	1·82

STATEMENT VI.

Three years, 1870—72.	Percentage to Strength.				
	Admission.	Daily Sick.	Deaths.	Invalided.	
				For discharge.	Sick leave.
Bengal ...	148·54	4·51	1·89	2·62	2·15
Madras ...	81·49	2·80	1·24	1·95	1·90
Bombay ...	*138·01	*4·39	1·37	3·60	2·18

* Calculated on the *total* strength.

Comparison with other Presidencies.

Comparison with other Presidencies.—The statement given on the margin contrasts the rates of sickness, mortality, and invaliding amongst the Native Armies of the three Presidencies for the three years 1870, 1871, and 1872. It will be observed that the health of the troops in this command is greatly superior to those of either the sister Presidencies.

Relative rates of sickness, &c., in the cavalry and infantry.

Relative rates of Sickness, &c., of the different branches of the Native Army.—The relative sickness, mortality, and invaliding in the cavalry and in the infantry is shown on the margin contrasted with former periods.

STATEMENT VII.

Period.	Service.	Strength.		Percentage to Strength.				
		Present.	Total.	Admission.	Daily Sick.	Deaths.	Invalided.	
							For discharge.	Sick leave.
1870 to 1872.	Cavalry ...	3,687	3,844	68·13	2·35	·80	1·87	·91
	Infantry.	83,451	83,451	80·02	2·82	1·26	1·95	1·75
1873 ...	Cavalry ...	1,071	1,208	83·84	2·70	1·15	2·64	2·23
	Infantry.	27,091	28,447	87·61	2·91	·91	1·91	1·80

The sick and death rates have been lower in the cavalry than the infantry. The invaliding rates are, however, higher in the cavalry, and these may be expected to continue high for some time to come, as the average age and length of service of men serving in this branch of the army, now greatly exceeds

that of the infantry. No recruiting has taken place for the cavalry for several years past, and the four regiments are all below their authorized strength.

Statistics of caste.

Mortality according to Caste.—The strength, &c., of Hindoos, Mahomedans, and Christians serving in the Native Army for 1873 are shown on the margin. It will be seen that for 1873 and for three previous years, the death-rate has been greatest amongst Hindoos, next amongst Mussulmans, and least amongst Christians. This point has often been noticed, and its explanation is doubtless to be found in the fact that, Hindoos living chiefly on vegetable substances are the least nourished, Mahomedans and Christians using animal food as freely as their means admit.

STATEMENT VIII.

Year.	Caste.	Strength.	Per cent Death.
1870 to 1872.	Hindoos ...	16,874	1·32
	Mussulmans..	11,258	1·12
	Christians ...	2,197	·94
1873 ...	Hindoos ...	16,527	·94
	Mussulmans...	11,070	·89
	Christians ...	2,560	·70

STATEMENT IX.

Causes of sickness and mortality.

Year.	Admissions.								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Disease.	Disease of the Eye.	Disease of the Lungs.	Diarrhœa.	Dysentery.	Skin Disease.
1873 ...	365	4,241	7,143	1,386	905	728	677	752	2,074
	Percentage to Strength.								
	1·29	15·0	25·3	4·9	3·21	2·58	2·40	2·67	7·36

Causes of Sickness and Mortality.—The diseases which have chiefly made up the admissions into hospital during the year 1873 are shown on the margin. Fevers of a malarious type have been most frequent, and next in numerical order, continued fevers, diseases of the skin, rheumatic affections, and diseases of the eye, &c.

STATEMENT X.

Rates of sickness contrasted with previous years.

Years.	Percentage of Admissions to strength, (Present.)								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Diseases of the Eye.	Disease of the Lungs.	Diarrhœa.	Dysentery.	Skin Disease.
1871 ...	·66	17·9	27·7	4·9	3·1	2·5	2·7	2·3	7·0
1872 ...	·92	31·1	23·0	6·5	2·1	2·4	2·6	2·5	7·4
Average	·79	24·5	25·3	5·7	2·6	2·4	2·6	2·4	7·2
1873 ...	1·3	15·0	25·3	4·9	3·2	2·5	2·4	2·6	7·3

Admissions of 1873 *compared with previous periods.*—Compared with 1871-72, malarious fevers in 1873 have not varied; the proportion of continued fevers are lower. Eruptive fevers rather higher. The decrease in the admissions from continued fever may be attributable to the diminished prevalence of dengue fever.

STATEMENT XI.

Causes of mortality.

Years.	Deaths in Hospital.								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers	Rheumatic Disease.	Diseases of the Eye.	Disease of the Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.
1873...	1	8	25	1	...	23	9	12	...
	Percentage to Strength (present).								
	·003	·02	·08	·003	...	·08	·03	·04	...

Causes of Mortality. — The diseases from which the deaths in hospital occurred if taken in the order of greatest frequency have been malarious fevers, diseases of the lungs, dysentery, diarrhœa and continued fevers.

STATEMENT XII.

Deaths contrasted with former years.

Years.	Percentage of Mortality to Strength, (Present).								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Diseases of the Eye.	Disease of the Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.
1871 ...	...	·03	·13	·01	·003	·11	·09	·05	·01
1872 ...	·01	·02	·18	·006	...	·13	·04	·07	...
Average	·005	·025	·15	·008	·001	·12	·06	·06	·005
1873 ...	·003	·02	·08	·003	...	·08	·03	·04	...

Deaths contrasted with former years.— Deaths from malarious fevers and from other diseases are nevertheless considerably below the average of the years 1871 and 1872. The deaths from the former disease are not half what they were last year. The mortality from diseases of the lungs was also low.

Diseases which have principally caused invaliding for sick leave and discharge the service are shown in the following table :—

STATEMENT XIII.

Year.	Invaliding																	
	For discharge the service.									For change of climate.								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Disease of Eye.	Diseases of Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Diseases of Eye.	Diseases of Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.
1873...	..	9	10	54	17	28	1	1	4	1	13	62	66	10	61	13	31	10
	Percentage to Strength.																	
	...	·03	·03	·17	·05	·09	·003	·003	·01	·003	·04	·20	·22	·03	·20	·04	·10	·03

After old age and prolonged service; rheumatic affections, diseases of the lungs, and eye affections have mostly produced invaliding for pension; while malarious fevers, rheumatic affections, and diseases of the lungs, have been the principal ailments for which men have been sent away on sick leave. The above figures may be contrasted with previous periods by examining the following table :—

STATEMENT XIV.

Years.	Invalided per cent. to Strength.																	
	For discharge the service.									For change of climate.								
	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Diseases of Eye.	Diseases of Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.	Eruptive Fevers.	Continued Fevers.	Malarious Fevers.	Rheumatic Affections.	Diseases of Eye.	Diseases of Lungs.	Diarrhœa.	Dysentery.	Skin Diseases.
1871 ...	...	...	·03	·20	·03	·06	·01	·01	·01	...	·006	·21	·37	·02	·20	·07	·05	.02
1872 ...	...	·02	·01	·22	·08	·07	·006	·01	·01	·006	·09	·29	·27	·02	·77	·09	·05	·04
Average	...	·01	·02	·21	·05	·06	·008	·01	·01	·002	·048	·25	·32	·02	·18	·08	·15	·03
1873 ...	...	·03	·03	·17	·05	·09	·003	·003	·01	·003	·04	·20	·22	·03	·20	·04	·10	·03

From this it will be noted, how closely the invaliding of 1873 is here shown to have been similar to that of the previous two years. The invaliding for rheumatic affections is lower than the average, but this disease is the chief one for which men are discharged the service, and is also the one for which most men are sent away for change of air.

Result of those cases sent on sick leave.—Of the 498* cases which were invalided for change of air during the year 1873, 78, or 16 per cent., died, the average of the three years 1870, 1871 and 1872 having been 10 per cent. The table is not so complete as I should desire, as the data of one year are necessarily mixed up with another, and some of the returns received are less trustworthy than they should have been.

Results of those cases sent on sick leave.

STATEMENT XV.

Years.	Numbers sent on sick leave.	Returned to duty.	Leave extended.	Deserted.	Pensioned.	Discharged.	Died.
1870 to 1872.	576	312	...	3	36	5	62
1873... ...	498	423	2	3	18	4	78

* Returns not received from eight Regiments.

Small-pox.

Small-pox.—In 1873, 60 small-pox cases occurred at 16 stations garrisoned by Native troops, and in 15 regiments. The greatest number took place in the 20th Regiment Native Infantry at Seetabuldee, and the 23rd Regiment Light Infantry at Bangalore. One death occurred in the former regiment from this disease.

Dengue fever.

Dengue fever.—During the year under review this disease continued to prevail in several parts of this Presidency, and 3,460 admissions, with 3 deaths from it, are entered in the Army Returns. Kamptee, Seetabuldee, Trichinopoly, Palamcottah, Vizianagram, Bangalore, Madras, French Rocks, Bellary, and several others suffered from it. The largest number of admissions in any one corps took place in the 20th Regiment Native Infantry at Seetabuldee, Chandah, and Seroncha amounting to 598. The 32nd, 24th, 12th, 35th, 13th, 30th and 19th Native Infantry also had many attacks, the admissions ranging from 562 in the first, to 56 in the last-named corps. The 2nd Light Cavalry stationed at Kamptee had 188 admissions. Nineteen regiments were attacked with the disease at 13 stations of the army.

The regiments attacked were left for some months after the epidemic comparatively much enfeebled, and in addition to the sequelæ noted in last year's report, functional and sometimes organic disease of the heart were set up. This was more especially observed in the 20th Regiment Native Infantry at Seetabuldee; and as a consequence a very large number were recommended by the medical officer to be invalided for discharge the service and sick leave. In the 2nd Madras Light Cavalry it was some months before the men were fit for mounted duties.

Cholera.

Cholera.—Fourteen admissions and 6 deaths from cholera are entered in the Army Returns. Of these, one case occurred in the 1st Regiment Native Infantry at Thyetmyo, and the remainder in the 31st Regiment while marching from Berhampore to Raipore, in the Central Provinces.

The outbreak took place near Sumbulpore, and was supposed to have been communicated by pilgrims.

Venereal diseases.

Venereal Diseases.—The total number of venereal diseases admitted during the year amounted to 371. The largest numbers of admissions took place in the 13th and 17th Regiments Native Infantry at Madras, amounting to 27 and 18; 22 in the 11th at Nagode; and from 1 to 17 cases in other corps.

These affections are rare in Madras Regiments, as the men usually reside with their families. If infected they usually, from shame, treat themselves, unless the ailments are so severe as to interfere with their duties. The most serious cases met with in Native Regimental Hospitals are cases of stricture, with retention of urine. Even such cases are often concealed till no longer endurable, as surgical interference is much disliked by every native of India.

Health of divisions.

Health of the Troops in the several divisions.—The statement on the margin, shows the rates of sickness and mortality, in each of the Military commands occupied by Madras Troops, and the troops employed in the Bengal Presidency, which consisted of a single corps stationed at Dorundah. Of the other commands it will be observed that the regiments stationed on the Western Coast in Malabar were healthiest, and the most sickness occurred among those in the Northern Division, Saugor, Burmah, Nagpore, and Hyderabad Division. The classes of disease which have chiefly made up these rates in the several commands are considered separately in the following statements.

STATEMENT XVI.

Military Commands.	Serial Number.	Daily Sick per cent. Strength.	Serial Number.	Admission per cent. of Strength.	Serial Number.	Deaths per cent. of Strength.
Bengal Presidency ..	1	·88	1	20·91	8	·98
Malabar and Canara ..	2	1·14	2	34·35	5	·70
Ceded Districts	3	2·16	3	54·12	1	·48
Southern Division ..	4	2·20	6	90·98	3	·64
Mysore	5	2·51	5	87·68	9	1·13
Presidency Division ..	6	2·57	4	76·56	2	·59
Mysore	7	2·90	10	104·93	10	1·33
British Burmah	8	3·58	9	102·82	11	2·04
Saugor Division	9	3·66	8	100·33	4	·64
Hyderabad Subsidiary Force.	10	3·84	11	109·91	7	·91
Northern Division ..	11	4·17	7	94·88	6	·70

STATEMENT XVII.

Diseases.	Admitted.	Died.	Per cent. to Strength.	
			Admitted.	Died.
Eruptive fevers ..	5	..	·73	..
Continued do... ..	..	..	..	..
Malarious do... ..	87	4	12·81	·57
Rheumatic affections ..	21	..	3·09	..
Diseases of the eye ..	..	..	..	..
Diseases of the lungs ..	8	1	1·17	·14
Diarrhœa	6	..	·88	..
Dysentery	6	..	·88	..
Skin diseases	2	..	·29	..

Bengal.

Bengal.—The average strength of the single regiment serving in Bengal was 679. Malarious diseases, as will be seen from the accompanying table, were the prevailing ailments, and these have very much increased on the numbers admitted last year, the admissions in 1873 being just double. These diseases have also been of a more severe type, as evidenced by the increased mortality, which in 1873 was ·57 per cent. as contrasted with ·15 per cent. in 1872.

STATEMENT XVIII.

Diseases.	Admitted.	Died.	Per cent. to Strength.	
			Admitted.	Died.
Eruptive fevers ..	5	..	·25	..
Continued do	22	..	1·14	..
Malarious do	101	..	5·24	..
Rheumatic affections ..	52	..	2·69	..
Diseases of the eye ..	20	..	1·03	..
Diseases of the lungs ..	35	1	1·81	·05
Diarrhœa	17	..	·88	..
Dysentery	36	1	1·86	·05
Skin diseases	116	..	6·01	..

Malabar and Canara.

Malabar and Canara.—The strength in this division for 1873 is 1,927, being 24 more than last year. As was the case last year, skin diseases caused the highest number of admissions, but are fewer than in 1872, when they stood at 159. The admissions from malarious fevers were next in number.

Ceded Districts.

Ceded Districts.—The troops serving in this division of the army during the year numbered 1,526. Their health was satisfactory, though continued and malarious fevers were the prevailing complaints. Diseases of the eye in this district are comparatively numerous. This may be attributable perhaps to the extreme dryness of the climate; the saline character of the soil; and the great absence of shade. There are scarcely any trees even at Bellary, although it is the Chief Station of the Division.

STATEMENT XIX.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	10	...	·65	...
Continued do. ..	78	...	5·11	...
Malarious do. ...	156	1	10·22	·06
Rheumatic affection...	59	...	3·86	...
Diseases of the eye ...	83	...	5·43	...
Diseases of the lungs..	18	...	1·11	...
Diarrhœa	29	...	1·90	...
Dysentery	31	...	2·03	...
Skin diseases... ...	54	...	3 53	...

STATEMENT XX.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	131	...	4·07	...
Continued do. ...	1,076	1	33·45	·03
Malarious do. ...	513	1	15·95	·03
Rheumatic affection...	108	...	3·35	...
Diseases of the eye ...	68	...	2·11	...
Diseases of the lungs..	87	2	2·70	·06
Diarrhœa	64	2	1·99	·06
Dysentery	78	...	2·42	...
Skin diseases... ...	198	...	6·15	...

Southern Division.

Southern Division.—The average strength of the troops in the Southern District amounted to 3,216 during 1873, which is 669 more than last year. The admissions from continued fevers stand very high this year, as they did in last year's report, owing to the continued prevalence of dengue fever in this division.

Mysore Division.

STATEMENT XXI.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	119	...	4·33	...
Continued do. ...	451	2	16·42	·07
Malarious do. ...	642	7	23 38	·25
Rheumatic affection...	117	...	4·26	..
Diseases of the eye ...	109	...	3·97	...
Diseases of the lungs..	59	6	2·14	·21
Diarrhœa	46	1	1·67	·03
Dysentery	44	3	1·60	·10
Skin diseases	195	...	7·10	...

Mysore Division.—2,745 was the strength of the troops serving in Mysore, which was 1,324 higher than in 1872. The health of the troops was good. The admissions in numerical sequence, were malarious fevers, continued fevers, skin diseases, eruptive fevers, &c. There were seven deaths from the first-named disease. The admissions from diseases of the lungs were only 59, but of these 6 died.

Presidency Division.

Presidency Division.—The average strength of the troops serving in this division during 1873 was 3,499. The sickness shown in this command is weighted by the Palavaram Depôt. These admissions have not been entered in this table, in order that comparison may be better made with other divisions; but a table showing the health of this hospital is given elsewhere. Last year dengue was very prevalent. This year there has been a great decrease in fevers of every type, more especially continued. Rheumatic affections are also very low compared with last year.

STATEMENT XXII.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	22	...	·62	...
Continued do. ...	320	...	9·14	...
Malarious do. ...	520	...	14·86	..
Rheumatic affection...	196	...	5·60	...
Diseases of the eye ...	70	...	2·00	...
Diseases of the lungs..	81	...	2·31	...
Diarrhœa	105	...	3·00	...
Dysentery	116	2	3·31	·05
Skin diseases... ...	446	...	12·74	...

Nagpore Division.

STATEMENT XXIII.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	24	...	·81	...
Continued do. ...	619	2	20·91	·06
Malarious do. ...	851	3	28·75	·10
Rheumatic affection...	123	...	4·15	...
Diseases of the eye ...	145	...	4·90	...
Diseases of the lungs..	69	3	2·33	·10
Diarrhœa	104	1	3·51	·03
Dysentery	89	2	3·00	·06
Skin diseases... ...	211	...	7·13	...

Nagpore Division.—The average strength during the year under review amounted to 2,959 men, which is an increase of 685 over the strength for 1872. Malarious fever, as usual, prevailed largely. Continued fevers are also high, owing to the prevalence of dengue fever at Kamptee and Seetabuldee.

British Burmah.

STATEMENT XXIV.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	1	...	·04	...
Continued do. ...	6	...	·24	...
Malarious do. ...	1,073	2	43·23	·08
Rheumatic affection...	197	1	7·93	·04
Diseases of the eye ...	48	...	1·93	...
Diseases of the lungs..	79	2	3·18	·08
Diarrhœa	154	4	6·20	·16
Dysentery	191	...	7·69	...
Skin diseases... ...	162	...	6·52	...

British Burmah.—The strength of the Native Army in this command during the year, amounted to 2,482, being a smaller number by 278 men than in 1872. Malarious cases of fevers formed 43·23 per cent. Dysentery and diarrhœa are also high. The only case of cholera in cantonment admitted into hospital during this year, occurred in the 1st Regiment at Thyetmyoo.

STATEMENT XXV.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	36	1	1·10	·03
Continued do. ...	961	...	29·62	...
Malarious do. ...	1,009	2	31·10	·06
Rheumatic affections...	139	...	4·28	...
Diseases of the eye ...	185	...	5·70	...
Diseases of the lungs...	62	2	1·91	·06
Diarrhœa	37	...	1·14	...
Dysentery	40	3	1·23	·09
Skin diseases	105	...	3·23	...

Saugor Division.

Saugor Division.—During the year 1873 this division had an average strength of (excluding the Head-Quarter and Right Wing 15th Native Infantry) 3,244 men, less by 631 than in the 1872 returns. Malarious fevers, continued fevers, diseases of the eye, and rheumatic affections, are all comparatively high in this division.

Hyderabad Subsidiary Force.

Hyderabad Subsidiary Force.—The number of Native Troops employed in this command amounted to 3,227, being 729 less than during 1872. The number of admissions from malarious fever were very high, being no less than 56·5 per cent. of strength. This was caused by the prevalence of intermittent fever in several of the corps serving there. A special report on this disease as it prevailed in the 3rd Regiment Native Infantry, will be found in the Appendix to this report, to which also is added my report on the prevalence of unusual sickness in certain corps at Secunderabad.

STATEMENT XXVI.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	10	...	·30	...
Continued do. ...	62	...	1·92	...
Malarious do. ...	1,825	5	56·55	·15
Rheumatic affections.	217	...	6·72	...
Diseases of the eye ...	90	...	2·78	...
Diseases of the lungs...	111	5	3·43	·15
Diarrhœa	60	1	1·85	·03
Dysentery	51	...	1·58	...
Skin diseases... ...	201	...	6·22	...

Northern Division.

Northern Division.—The strength of the troops serving in the Northern Division of the army was 2,658, being a slight increase over that of 1872. The admissions from continued fevers, take precedence of all other diseases in this division, amounting to 24·3 per cent. of strength. Skin diseases also stand very high in this division, amounting to 14 per cent. The admission-rate from this class of diseases in this and the Presidency district are double what they are elsewhere.

STATEMENT XXVII.

Diseases.	Admitted.	Died.	Percentage to Strength.	
			Admitted.	Died.
Eruptive fevers ...	2	...	·07	...
Continued do. ...	646	3	24·3	·11
Malarious do. ...	366	...	13·76	...
Rheumatic affections...	157	...	5·9	...
Diseases of the eye ...	87	...	3·27	...
Diseases of the lungs.	119	1	4·47	·03
Diarrhœa	55	...	2·06	...
Dysentery	70	1	2·63	·03
Skin diseases... ...	384	...	14·14	...

STATEMENT XXVIII.

Years.	Admissions.	Daily Sick.	Deaths.	Invalided	
				For pension.	Change of air.
1870 ...	253	20	22	10	*
1871 ...	173	15	8	10	101
1872 ...	111	9	11	2	74
Average..	179	15	14	7	87·5
1873 ...	197	16	22	...	133

* Information wanting.

Palaveram Depôt.—The admissions into the depot at Palaveram, as shown by the accompanying table, have been 197, the daily sick 16, and the deaths 22. The invaliding for change of air amounted to 133. No men were invalided for pension at the depôt in 1873.

It will be observed that the sickness, mortality, and invaliding have been far greater during 1873 than the average for the two former years, and as in previous periods are chiefly amongst men who have been sent over sick from Burmah.

The admissions into hospital were chiefly from fevers of a malarious type, rheumatic affections, diarrhœa, dysentery, diseases of the lungs, skin diseases, and general debility.

Of the deaths, 7 were in hospital and 14 out (on sick leave.) Of the former the following diseases were the cause:—Phthisis pulmonalis (1), dysentery, chronic (1), diarrhœa (1), dyspepsia with general debility (1), general debility (2), and chronic rheumatism (1).

A Native Officer died of general dropsy.

Health of stations.

Health of the different stations garrisoned by Madras Troops.—The following table has been compiled from statistics collected in the Sanitary Commissioner's Report for 1873, and shows the rates of sickness and mortality of each station for 1873 contrasted with previous periods:—

STATEMENT XXIX.

Stations occupied by one or more Regiments.

Stations.	From 1866 to 1872. Percentage to Strength.						Stations.	For 1873. Percentage to Strength.					
	Serial Number.	Daily Sick.	Serial Number.	Admissions.	Serial Number.	Death.		Serial Number.	Daily Sick.	Serial Number.	Admissions.	Serial Number.	Deaths.
Palamcottah ...	1	1·5	2	38·5	5	·85	Cannanore ...	1	·9	2	24	2	·39
Trichinopoly ...	2	1·6	6	48·1	11	1·09	Quilon	2	·93	1	24·9	12	·82
Cannanore ...	3	1·6	3	38·6	2	·79	Manglore ...	3	1·6	7	53·9	13	·92
Vizianagrum ...	4	1·8	1	36·5	9	1·01	French Rocks ...	4	1·7	13	89·8	19	·20
Mangalore ...	5	1·9	7	49·2	16	1·30	Vellore	5	1·9	8	55·2	10	·77
Bellary	6	2·0	4	42·6	6	·91	Thyetmyo ...	6	1·98	5	47·1	21	1·35
Thyetmyo ...	7	2·1	9	54·0	3	·81	Bellary	7	2·0	6	47·7	7	·58
Quilon	8	2·3	8	52·1	4	·83	Raipore	8	2·1	9	62·1	4	·47
Madras	9	2·5	11	66·4	10	1·05	Rangoon ...	9	2·13	3	37·8	17	1·15
Cuttack... ...	10	2·7	5	43·9	13	1·13	Trichinopoly ...	10	2·5	15	108·9	5	·53
Seetabuldee ...	11	2·8	22	114·2	1	·78	Bangalore ...	11	2·6	10	83·3	18	1·15
Bangalore ...	12	2·9	14	80·1	14	1·16	Cuttack... ...	12	2·7	11	41·1	3	·45
Kamptee ...	13	3·0	17	92·4	7	·96	Madras	13	2·8	12	83·6	8	·68
Secunderabad ...	14	3·2	15	85·4	12	1·10	Palamcottah ...	14	3·1	19	137·3	6	·53
French Rocks ...	15	3·2	16	85·7	17	1·33	Kamptee ...	15	3·5	16	115·8	20	1·32
Rangoon ...	16	3·3	10	62·3	8	·96	Secunderabad ...	16	3·7	14	108·6	1	·8
Vellore	17	3·3	13	70·5	22	2·17	Mercara ...	17	3·8	17	116·7	16	1·09
Vizagapatam ...	18	3·5	12	67·4	18	1·35	Tonghoo ...	18	4·4	18	124·5	15	·98
Mercara... ...	19	3·8	20	105·5	15	1·29	Moulmein ...	19	5·0	20	154·7	22	1·91
Raipore ...	20	3·9	21	113·0	21	1·75	Vizagapatam ...	20	5·5	11	83·4	11	·80
Moulmein ...	21	4·4	18	95·3	20	1·69	Vizianagrum ...	21	6·4	21	170·5	14	·94
Tonghoo ...	22	4·4	19	103·4	19	1·66	Seetabuldee ...	22	13·2	22	299·7	39	·70
Stations occupied by Wings.													
Hosingabad ...	1	2·6	2	77·8	1	1·12	Berhampore ...	1	2·32	2	87·4	3	2·54
Berhampore ...	2	2·6	1	55·9	2	1·39	Hosingabad ...	2	2·36	1	80·4	2	1·06
Sumbulpore ...	3	4·2	3	201·2	3	2·40	Sumbulpore ...	3	3·	3	102·7	1	...
Stations occupied by Detachments.													
St. Thomas' Mount ...	1	1·9	3	69·8	4	1·10	St. Thomas' Mount ...	1	·5	1	24·4	10	1·4
Seroncha ...	2	3·8	6	138·0	5	1·11	Trevandrum ...	2	1·4	4	52·9	1	...
Port Blair ...	3	5·5	5	133·5	8	2·44	Trichoor ...	3	1·7	2	37·2	2	...
Chandah ...	4	5·7	8	199·5	7	1·60	Mysore	4	2·06	6	125·3	3	...
Shoygheen ...	5	7·6	7	190·4	6	1·21	Port Blair ...	5	3·0	5	101·1	8	1·1
Trevandrum ...	6	...	1	36·9	12	·53	Seroncha ...	6	3·6	8	159·7	9	1·3
Trichoor ...	7	...	2	41·2	1	...	Shoygheen ...	7	4·1	7	138·1	7	·8
Mysore	8	...	4	79·1	3	·79	Chandah ...	8	4·25	9	189·4	4	...
Nicobars ...	9	26·05	9	601·7	9	4·2	Akyab... ...	9	13·5	3	46·4	6	·78
Akyab	10	...	...	...	...	...	Nicobars ...	10	13·7	10	724·3	5	...

Daily sick-rates of stations.

From the above table it will be observed that during the seven years, 1866 to 1872 inclusive, the average daily sick at different stations ranged from 1·5 per cent. of strength at the healthiest, to 4·4 at the most insalubrious; but in 1873 it varied from ·9 at Cannanore, to 13·2 at Seetabuldee. Taking the average of seven years, Palamcottah in the southern part of the Madras Presidency is healthiest of all the cantonments occupied by Native soldiers.

Disturbing elements.

Tonghoo in Burmah is the most unhealthy. During 1873, however, dengue fever was a disturbing element in Palamcottah, leaving the western coast stations

the healthiest of the year. Seetabuldee, where the worst outbreak of dengue occurred, had an average daily sick list of 13·2. Under ordinary conditions, this station holds a middle place as to salubrity, with a daily sick list of 2·8.

The sick-rate in some of the detachment stations in Burmah was high, viz., at Akyab and the Nicobars. At the latter station a detachment of the 27th Regiment Native Infantry suffered much from malarious fever.

Admission-rate in stations.

The highest average rate of admissions in the previous seven years was at Seetabuldee, where the Native soldiers suffer frequently from malarious fever, which is attributed to their badly-drained lines.

Vizianagrum has the lowest rate of admissions. In 1873, however, the lowest admission-rate was at Quilon, but the greatest again at Seetabuldee.

Mortality-rate in stations.

The death-rate, however, at Seetabuldee for seven previous years was ·78 per cent. of the strength, while at Vellore the death-rate was 2·17 per cent. of the strength.

For 1873 the least mortality (·8 per cent.) took place at Secunderabad, and the greatest at Moulmein (1·91 per cent.).

Health of Regiments.

Table showing the regiments of the Madras Army in order of sickness, &c., during 1873, and the average for three previous years.

STATEMENT XXX.

Regiments.	From 1870 to 1872. Percentage to Strength.						Regiments.	For 1873. Percentage to Strength.					
	Serial Number.	Daily Sick.	Serial Number.	Admitted.	Serial Number.	Died.		Serial Number.	Daily Sick.	Serial Number.	Admitted.	Serial Number.	Died.
33rd Native Infantry ...	1	1·09	1	17·67	29	1·18	26th Regiment N. I. ...	1	·70	4	25·52	18	·70
16th do. ...	2	1·18	7	45·47	5	·74	9th do. ...	2	·77	2	17·26	17	·62
26th do. ...	3	1·24	16	65·21	4	·71	33rd do. ...	3	·88	3	20·91	29	·98
25th do. ...	4	1·33	5	39·59	1	·58	25th do. ...	4	·93	5	31·14	3	...
22nd do. ...	5	1·41	3	37·46	10	·82	3rd Light Cavalry ...	5	1·53	15	61·68	40	1·68
9th do. ...	6	1·49	4	37·69	10	·96	34th Native Infantry ...	6	1·70	10	54·57	39	1·46
21st do. ...	7	1·69	12	55·86	13	·89	30th do. ...	7	1·71	32	102·92	34	1·24
5th do. ...	8	1·81	10	52·95	28	·11	16th do. ...	8	1·74	8	43·08	23	·72
17th do. ...	9	1·89	19	74·50	20	·96	28th do. ...	9	1·78	9	52·89	4	...
24th do. ...	10	1·89	8	49·54	32	1·33	1st do. ...	10	1·87	7	42·72	33	1·19
2nd Regiment L. C. ...	11	2·06	9	51·50	7	·76	17th do. ...	11	1·87	19	69·59	8	2·8
4th do. ...	12	2·06	2	35·19	6	·75	31st do. ...	12	1·87	21	70·27	37	1·42
32nd Regiment N. I. ...	13	2·06	21	77·36	11	·86	38th do. ...	13	2·03	18	66·40	36	1·40
4th do. ...	14	2·09	6	41·63	24	1·07	4th do. ...	14	2·04	1	4·89	21	·72
35th do. ...	15	2·10	11	55·30	38	1·52	11th do. ...	15	2·04	14	61·34	10	·42
34th do. ...	16	2·13	13	58·15	36	1·51	1st Light Cavalry ...	16	2·16	20	69·69	11	·43
39th do. ...	17	2·14	26	85·11	22	·97	4th do. ...	17	2·22	13	60·00	24	·73
1st Regiment L. C. ...	18	2·31	27	85·73	2	·61	21st Native Infantry ...	18	2·25	11	57·05	6	·14
30th Regiment N. I. ...	19	2·52	18	70·96	34	1·45	22nd do. ...	19	2·27	35	111·22	26	·84
14th do. ...	20	2·55	17	70·88	27	1·14	23rd do. ...	20	2·30	22	77·63	41	1·59
23rd do. ...	21	2·59	20	76·58	12	·87	6th do. ...	21	2·41	17	64·19	22	·72
41st do. ...	22	2·60	15	64·72	21	·96	37th do. ...	22	2·61	25	78·66	38	1·43
19th do. ...	23	2·74	28	87·92	16	·92	29th do. ...	23	2·63	12	59·94	13	·56
29th do. ...	24	2·74	22	77·87	44	2·12	15th Left Wing N. I. ...	24	2·65	30	100·66	2	...
38th do. ...	25	2·77	24	81·33	41	2·02	19th Native Infantry ...	25	2·73	31	102·42	5	·14
31st do. ...	26	2·94	33	95·11	33	1·40	32nd do. ...	26	2·73	42	147·64	16	·58
13th do. ...	27	2·99	25	83·69	14	·92	41st do. ...	27	2·73	6	41·03	20	·71
3rd Light Cavalry ...	28	3·14	37	99·28	23	1·06	5th do. ...	28	2·76	34	107·12	15	·57
15th Native Infantry ...	29	3·16	45	161·75	15	·92	39th do. ...	29	2·81	26	80·91	9	·29
11th do. ...	30	3·18	39	103·94	43½	2·12	2nd do. ...	30	2·90	28	95·79	7	·28
1st do. ...	31	3·32	31	92·02	26	1·14	24th do. ...	31	3·09	38	121·31	12	·43
Sappers and Miners ...	32	3·37	36	98·54	37	1·51	14th do. ...	32	3·27	16	63·08	45	2·15
3rd Native Infantry ...	33	3·39	42	124·82	17	9·94	36th do. ...	33	3·45	23	77·70	30	1·14
Body Guard	34	3·40	23	79·52	8	·78	Body Guard	34	3·47	27	87·82	1	...
2nd Native Infantry ...	35	3·42	38	100·61	39	1·83	8th Regiment N. I. ...	35	3·47	37	118·16	32	1·16
28th do. ...	36	3·53	29	88·93	18	·95	35th do. ...	36	3·47	33	106·81	43	1·88
6th do. ...	37	3·57	40	107·23	3	·65	38th do. ...	37	3·88	29	99·69	25	·73
18th do. ...	38	3·79	34	98·04	31	1·26	40th do. ...	38	3·73	36	117·10	42	1·71
20th do. ...	39	3·84	44	136·26	9	·82	Sappers and Miners ...	39	4·03	39	121·80	14	·56
37th do. ...	40	3·89	46	173·79	46	2·80	10th Native Infantry ...	40	4·43	40	126·42	44	1·89
36th do. ...	41	3·99	14	60·27	25	1·13	2nd Regiment L. C. ...	41	4·60	41	142·25	35	1·36
27th do. ...	42	4·01	41	113·15	45	2·23	7th Regiment N. I. ...	42	4·71	24	78·23	27	·85
10th do. ...	43	4·07	30	90·39	30	1·21	27th do. ...	43	4·92	45	190·68	46	3·07
7th do. ...	44	4·73	43	126·72	42	2·08	3rd do. ...	44	4·94	43	164·62	31	1·16
40th do. ...	45	4·92	35	98·41	35	1·50	12th do. ...	45	6·42	44	164·83	28	·98
12th do. ...	46	4·96	32	93·85	40	1·86	20th do. ...	46	9·93	46	214·58	19	·71

It may be observed with reference to the above tabular statement, that in those corps which show a high rate of admissions and daily sick, dengue fever, and malarious fevers, were the chief causes.

Daily sick-rate in regiments.

During the previous three years, 1870, 1871, and 1872, the daily sick-rate has varied from 1·09 per cent. in the 33rd Regiment Native Infantry to 4·96 per cent. in the 12th Native Infantry; while for 1873 it has varied from ·70 per cent. in the 26th Regiment Native Infantry, to 9·93 per cent. in the 20th Native Infantry.

Admissions in regiments.

The admission-rate for the previous three years, 1870—72, has varied from 17·67 per cent. in the 33rd Regiment Native Infantry to 173·79 per cent. in the 37th Native Infantry; while in 1873 it has ranged between 4·89 per cent. in the 4th Native Infantry, and 214·58 in the 20th Native Infantry.

Mortality of regiments.

The mortality-rate for previous years, 1870—1872, has ranged from ·58 per cent. in the 25th Native Infantry, to 2·80 per cent. in the 37th Native Infantry; while in 1873, the 25th Native Infantry; 28th Native Infantry; Left Wing 5th Native Infantry; and Governor's Body Guard, had no deaths. The greatest percentage of deaths (3·07) occurred in the 27th Native Infantry at Moulmein.

Healthiest Corps. most sickly.

For 1873, the healthiest corps (judged of by the daily sick-rate) in the Native Army was the 26th Regiment at Quilon, and the most sickly the 20th Regiment at Seetabuldee.

Movements of Corps.

Movements of Corps.—Movements of eighteen corps were made during 1873, in almost all without anything worthy of record. This is a very different result to that common up to the opening of railways, when scarcely a movement could be made of any body of troops without many, sometimes hundreds, of the fighting men and followers being swept off by cholera. And then also, tents and extensive Commissariat arrangements had to be made, to place supplies on the line of march. The Right Wing of the 22nd Madras Native Infantry, Kamptee, after leaving Palamcottah, was attacked with a severe outbreak of dengue fever, and the 31st Regiment Light Infantry when marching from Berhampore to Raipore was attacked with cholera near Sumbulpore; losing 5 sepoys out of 13 attacked, and 26 out of 68, camp followers attacked.

STATEMENT XXXI.

Regiment.	From.	To.	How moved.
1st Regiment L. C...	Kamptee ...	Secunderabad...	By marches.
2nd Native Infantry...	Waltair ...	Berhampore ...	Do. do.
Do. Left Wing.	Do. ...	Sumbulpore ...	Do. do.
5th Native Infantry...	Secunderabad...	Saugor ...	Part by rail, part by marches.
7th do. do. ...	Madras ...	Vizagapatam ...	By sea transport.
8th do. do. ...	Cercara ...	Seetabuldee ...	Part by rail, part by marches.
13th do. do. ...	Palaveram ...	Madras ..	By marches.
16th do. do. ...	Bellary ...	Jubbulpore ...	By rail.
20th do. do. ...	Seetabuldee ...	Bandah ...	Part by rail, part by marches.
21st do. do. ...	Jubbulpore ...	Bellary ...	By rail.
22nd do. do. ...	Palamcottah ...	Hoshungabad...	Part by rail, part by marches.
24th do. do. ...	Secunderabad...	Palamcottah ...	Do. do.
26th do. do. ...	Trichinopoly ...	Quilon ...	By marches.
31st do. do. ...	Berhampore ...	Raipore ...	Do. do.
32nd do. do. ...	Kamptee ...	Trichinopoly ...	Part by rail, part by marches.
39th do. do. ...	Bangalore ...	Palaveram ...	By rail.
40th do. do. ...	Saugor ...	Secunderabad...	Part by rail, part by marches.
2nd Light Cavalry ...	Bellary ...	Kamptee ...	Marches.

Sepoy Huts and Lines.

Sepoy Lines.—The accommodation of the sepoys and their lines have received the utmost care on the part of the Military authorities. The progress of improvement is slow, but its necessity has been recognised, and new lines are being built for certain regiments where the requirements for such were most urgent. At the same time Executive Medical Officers, well supported by the regimental authorities, have done all in their power to aid in improving the sanitary condition of the old lines by attention to the conservancy arrangements, and, as far as means have admitted, improvement has been made in their drainage and sewerage.

In some cases, however, these have been matters of extreme difficulty, if not of impossibility, on account of inherent defects of the original sites, &c., and nothing but actual removal to new ground can supply the proper remedy for evils which are implanted in the soil.

New Lines at Bangalore.—The Deputy Surgeon-General, Mysore Division, in his annual report states that, "at Bangalore the Sappers and Miners have long been hutted in new lines, with huts or houses of superior construction, broad streets, and an efficient system of drainage by V section stone drains, combining in one, drainage proper and sewerage." New Lines at Bangalore.

"New lines of the same description are under construction, and appear almost ready for occupation for one of the two Native Regiments located at this station.

"At Mercara, also, new lines with dwellings of a better construction, have been provided for one wing of the regiment there stationed, and the houses and lines for the other wing are to be constructed on the same plan. At Mercara.

At Secunderabad.—The only change made in the native lines during the year, has been the building of new huts, tiled and laid out in broad regular streets, for the horse-keepers and grass-cutters of the 1st Light Cavalry, and the demolition—still in progress—of the old European Barracks, in the lines of the 29th Regiment at Begumpet. The conservancy of all the lines is carefully attended to, and is as good as the means at disposal admit. The drainage is natural, aided by side-channels cut in the ground. The great cost of stone-faced drains has prevented their introduction." At Secunderabad.

Lines in Central Provinces.—The Deputy Surgeon-General at Nagpore writes: "The sanitary condition of the native lines at Raepore, Hoshungabad, and Chandah, leave little to be desired, except that the old lines at Chandah require to be levelled. The same may be said of the lines at Kamptee, with the exception of the 35th, which are capable of great improvements by levelling, drainage, &c. The barracks at Seroncha have been repaired, and appear to be in fair order." Lines in Central Provinces.

Bad condition of Seetabuldee Lines.—The lines at Seetabuldee are situated in a *swamp*, and I regret to say that I see no prospect of their speedy removal to higher ground." Bad condition of Seetabuldee Lines.

Remedy urgently called for.—The great sickness of a malarious character which prevails in the regiments occupying these lines, points to the necessity for a fresh site, or for thoroughly draining them. Remedy urgently called for.

The high rate of sickness prevalent in such sites as the above is not the only evil: the consequent weakening and reduced physical condition of the men which follows quickly upon their occupation, renders early invaliding and increased burdening of the Pension Establishment inevitable.

At the time I write, the 20th Native Infantry which occupied the Seetabuldee lines in 1873, and are now quartered at Bandah, has a daily sick list of 80 men.

Importance of sub-soil drainage.—Much of the sickness in corps would be prevented if the sites of lines before being built upon, were thoroughly sub-soil drained. I believe this to be a process of the greatest importance, more especially in those places where the sub-soil is known to be highly retentive of moisture. On this point I would direct attention to the remarks made in annual report of the 2nd Light Cavalry at Kamptee, where the huts of the men are shown to be damp and unwholesome from this cause, for some time during the rains and after their cessation. Importance of sub-soil drainage.

2nd Madras Light Cavalry Drainage.—"There is no regular system of drainage for the lines beyond the ordinary shallow trenches at the sides of the streets to facilitate the escape of the rainfall. 2nd Madras Light Cavalry Drainage.

The fluid sewerage from the huts escapes from the courtyards into these, and soaks into the ground.

These lines are said to be the most healthy in Kamptee, and built as they are on elevated ground with a good slope to the south, would strike the casual observer as requiring no assistance, beyond what nature has given for the complete drainage of the site.

No greater mistake could be made, for the men of this corps for many years past have never been located on a site, where the services of the Engineer were more required.

I write this from the experience gained during the late monsoon which has been, as before remarked, an unusually light one. During these months the floors and walls of the men's huts were always damp, and remained so for many days after the cessation of the rain. So damp and moist were the walls of many, that to account satisfactorily for the causes on such elevated ground, is a problem of some interest.

In company with the Commanding Officer I have visited the interior of the huts, and we have failed to discover a remedy for it.

There is no higher ground in the neighbourhood, and the walls of the huts are not saturated directly from the rains. The moisture rises from below upwards.

The geological character of the soil would appear to favor the retention of moisture for some time, and the walls of the huts being of the same material absorb it like a sponge. I believe the real remedy for this state of things is a thorough system of sub-soil drainage, and until this is done our sepoy regiments will always show a high admission rate from fever while stationed here.

I have inquired into this matter, and I am informed that this state of things is peculiar to most native houses in Kamptee, and the inhabitants mostly sleep on charpoys, while our men have been accustomed to sleep on earthen chabootras, or on the ground.

The capacity of the huts is too limited to admit of all the members of a family being accommodated with charpoys, hence evils in the shape of fever and rheumatism, must be expected to develop themselves."

Without some such measure as sub-soil drainage it is impossible to believe, but that the gradual pollution of the soil from the domestic latrines, together with a water-logged sub-soil, must in time render the most unexceptional of sites very unhealthy.

Water-supply.

Water-supply.—The water-supply of the troops has occupied the attention of the Medical Officers. An improved conservancy system also means, in many instances a better and a purer water-supply. At Madras, water is now brought in from a lake of great size, which has been constructed at the Red Hills, about 8 miles distant, and at all stations the greatest care is taken to select for drinking purposes, the wells of which the water on analysis has been found most pure, and measures are also taken to prevent pollution of these; either by placing sentries over them, or by hand boards set up indicating that the well is allotted for drinking purposes only.

Water-supply at Bangalore.

Water-supply at Bangalore.—At Bangalore a good water-supply is still a desideratum, and it is a question which at some of our large stations is still under consideration.

Water-supply at Secunderabad.

Water-supply at Secunderabad.—A scheme has been proposed at Secunderabad to supply the cantonment with water from the Hoossain Sangor Tank near the western extremity of the bund.

Deputy Surgeon-General Barclay states that a sample of the water has been analysed, and the report is highly favorable.

Clothing.

Clothing.—With a few exceptions the reports of all the Medical Officers state that the clothing of the men has been suitable to the seasons, the majority,

Soreness.

however, complain of the number and cases of foot-soreness from badly-fitting boots.

Vaccination.

Vaccination.—In the majority of corps no difficulty is found in inducing the men to allow their families to be vaccinated. The very few admissions and deaths from small-pox in the native army, is proof how well our sepoys are protected; for this complaint has been very prevalent amongst the civil population during the year.

The Vaccination Department has entertained women as vaccinators, and these have been sent to regiments and cantonments, to vaccinate the women who are concealed from the sight of men.

Hospitals.

Hospitals.—The hospital accommodation throughout the Presidency during the year has been ample, and there have been no reports of any overcrowding.

Where there has been a temporary increase of sickness (chiefly from invasions of dengue fever) tents have been indented for, or where possible, some of the men have been treated as out-patients in the lines, till the epidemic has subsided.

Tents were received at Seetabuldee and at Secunderabad for the 3rd and 4th N. I. At Kamptee the out-patient plan was adopted during the outbreak of dengue fever.

At Bellary the Cavalry Hospital was found unsafe and to require removal, and the men were treated in the hospital used for the followers.

Hospital Latrines.

Hospital Latrines.—The defective accommodation of the latrines attached to many of the native hospitals, as regards size and ventilation, was remedied during the year. Several were no larger than would fit them for a small private family. All of these have been ordered to be enlarged and improved. The 3rd, 6th, and 40th Regiments at Secunderabad have been supplied with new latrines. Dry earth conservancy is used in all with a liberal use of coal-tar, which, as a deoderant, and as preventing the wood and brick work soaking up the fluids of the excreta, has been found an invaluable addition to the ordinary conservancy arrangements. It was first suggested by Surgeon-Major Cleavland, now serving with the Cavalry at Bellary.

Administrative and Executive Medical Officers.

Administrative and Executive Officers.—The Executive Officers of the department have conducted their duties in a highly efficient manner. Their carefulness and willingness have been excellent, especially in those corps which have been burdened with heavy sick lists, from sudden invasions of epidemics of continued and malarious fevers.

As in former reports, I have annexed extracts from the Annual Medical and Sanitary Reports of the Medical Officers bearing on the health of the troops.

I have the honor to be,

Sir,

Your most obedient servant,

E. G. BALFOUR, Surgeon-General,

Surgeon-General, I.M.D.

MEDICAL AND SANITARY REPORT

OF THE

NATIVE ARMY OF MADRAS,

FOR THE YEAR

1873.

The regiments are placed as they stood on the 31st December 1873.

CENTRE, OR PRESIDENCY, DISTRICT.

Average strength	3,695
Do. do. present	3,499
Total admission	2,679
Daily sick	90
Deaths in hospital	9
Do. out of hospital	13
Pensioned	115
Sick leave	67

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

—	Rate per cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	44·96	2·27	1·15	3·14	...
1871 ...	60·02	2·75	1·33	1·19	4·22
1872 ...	136·03	3·77	·97	1·84	2·71
Average ...	80·33	2·93	1·15	2·05	2·31
1873 ...	76·56	2·57	·59	3·11	1·81

The following corps were serving in the division on the 31st December 1873 as shown in the Army List :—

Body Guard.
13th Regiment Native Infantry.
17th do. do.
28th do. do.
37th do. do.
39th do. do.

Deputy Surgeon-General Blacklock was in charge of this, and the Northern Division up to the time of his death, viz., 11th February 1873. Surgeon-Major

Duff acted till the 12th of March 1873, when he was succeeded by Deputy Surgeon-General Burn, who reports as follows :—

Seasonal phenomena.

Seasonal phenomena.—The rainfall appears to have been below the annual average throughout the Centre District with the exception of Ongole and Guntoor, where it was abundant, and at Nellore, where it was in excess of the usual fall. In other localities, such as Vellore and Cuddalore, some scarcity of rain has been experienced, while elsewhere in the district there has been no great aberration in the supply. The public health is not reported to have been injuriously affected by this somewhat irregular distribution of rain.

Necessaries of life.

Necessaries of life.—The crops have been fairly abundant nearly everywhere, and prices moderate in the earlier part of the year, but during the latter portion there has been a tendency to rise, mainly owing to the growing necessity of the export of grain to Bengal, and, as regards the Cuddalore District, to Ceylon.

Health of Native Troops.

Health of Native Troops.—Unlike last year, the 13th Regiment N. I., of those serving in the Centre District, alone suffered from dengue during the year. The disease was of mild type, and prevailed in the corps in the first and second quarters of the year. The general health of the other native regiments has been fairly good with the exception of the 37th Regiment N. I. This regiment returned in a weakly state from Burmah in 1872, and it continues the least health-efficient corps in the district.

Sickness.

Sickness.—Out of an average strength of 3,993·24, there was an average treated in ratio of 76·20 per cent. to strength, and deaths in and out of hospital in ratio of 2·03 per cent. These ratios are heavily weighted by the Native Infantry Depôt at Palaveram, consisting nearly entirely of men transferred sick from other regiments, mostly from those on foreign service.

The principal diseases and causes of death were—

	Total Treated.	Deaths in Hospital.
Fevers (exclusive of dengue)	579	...
Dengue	231	...
Rheumatism	183	1
Diseases of lungs	86	...
Dysentery	82	3
Diarrhœa	118	1
Abscess	75	...
Skin diseases	533	...
Debility	104	3

The largest number of deaths are due to bowel-complaints and debility. The following exhibit the ratio per cent. of deaths to the total treated for these diseases :—

	Percentage of Deaths.
Dysentery	3·65
Diarrhœa	0·85
Debility	2·88

Invaliding and sick leave.

Invaliding and sick leave.—There were 115 men invalided or pensioned, and 200 granted sick leave during the year from among the Native Troops serving in the Centre District. Here again the Native Infantry Depôt vitiates the results for comparison with other districts.

Cholera.

Cholera.—There was no single case of cholera among the Native Troops throughout the year. Some cases among the civil population are reported to have occurred in the Ongole, Nellore, and Vellore Districts, in Guntoor, and one case in Madras at the time the cholera-stricken emigrants were landed from the ship *Pandora*.

Small-pox.

Small-pox.—The troops have enjoyed a similar immunity from disease as regards small-pox. As it prevailed generally among the civil population, perhaps the influence of vaccination was not inactive in protecting the troops.

Malarious fever.

Malarious fever.—Fever of a pronounced malarious type has been equally absent throughout the period under report. Fevers have, however, been intractable and fatal in some parts of the Centre District, such as Chittoor, the Pulnaud, Tripati, Chellumbrum, and the Tirutani Hills. In the Nellore District the death-rate is reported higher than in any preceding year.

Movements of troops.

Movements of troops.—The 7th Regiment N. I. proceeded by sea from Madras to Vizagapatam ; the 13th Regiment N. I. marched from Palaveram to Madras ; and the Right Wing of the 39th Regiment N. I. by road from Bangalore to Palaveram in the early part of the year.

Under this head it may be remarked that the prevalence of foot-soreness is noticed in nearly every regiment, and is attributed to hard, badly-made shoes and to the want of socks.

Huts & lines.

Huts and lines.—No changes have taken place.

Hospitals.

Hospitals.—With the exception of a door added to the hospital of the Body Guard, and a railing with brick and mortar pillars, and a pucka drain completed round the Detail Hospital at St. Thomas' Mount, there have been no additions or changes during the year.

Body Guard.

Station—Madras.

Average strength	115
Do. do. present	115
Admissions	101
Daily sick	4
Deaths in hospital	...
Do. out of hospital	2
Pensioned	...
Sick leave	11

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Madras	37·79	1·57	1·57	4·72	...
1871	Do.	66·92	3·14	...	...	4·72
1872	Do.	133·85	5·51	·78	...	...
Average	.....	79·52	3·40	·78	1·57	1·57
1873	Madras	87·82	3·47	...	...	9·56

The following officers held medical charge during the year :—
Surgeon-Major M. C. Furnell, F.R.C.S.
Do. T. G. Howell.

Surgeon-Major Joseph, M.D., acted since 21st April 1873, and submits the annual report.

Climate.—There has been little change in the climate of this station during the past year as compared with the previous one, except that the amount of rainfall has been somewhat less. Provisions have been moderate in price, and the health of the public in general good. Climate.

Position of barracks.—The men reside in various parts of the town. Position of barracks.

Nuisances.—The drains, latrines, urinals, manure heaps, &c., are all carefully attended to. Nuisances.

Water-supply.—The water-supply is sufficient and of good quality. It is derived from the Seven Wells, a well in the Government House compound, and from fountains of Red Hills Tank water. Water-supply.

Sanitary arrangements.—The sanitary arrangements of the Lines are duly attended to, and no local causes of disease exist. Sanitary arrangements.

Diet.—Vegetables have been abundant and provisions cheap; compensation has not been drawn by the men of the Body Guard on account of the price of the different articles of diet. Diet.

Clothing.—Clothing sufficient and adapted to the climate in every respect. Clothing.

Duty and exercises.—The duties have consisted of the ordinary parades and drills; these have not been excessive or prejudicial in any way to the health of the men. Duty and exercises.

The average number of nights in bed have been three.

Drill.—Morning and evening stable duty, riding schools from 5-30 to 6-30 A.M., and foot-drill from 4 to 5 P.M. daily for recruits and marked men. The corps goes out weekly under the Commandant. No recommendations have been necessary, as the duties and drills of the men have been without any injurious effects on their health. Drill.

Lock-up rooms and prison cells.—There are only two solitary prison cells. The ventilation of these is defective, but they are very rarely used. Lock-up rooms and prison cells.

Vaccination.—Vaccination has been regularly attended to, and no cases of small-pox have occurred. There has also been no occasion to revaccinate any of the men. Vaccination.

Epidemic disease.—There has been no epidemic disease, excepting an outbreak of dengue fever. Epidemic disease.

Ventilation of the hospital.—The hospital still continues in the defective condition alluded to in last year's sanitary report, with the exception that a door has been opened, leading from the ward to the hospital latrine. Ventilation of the hospital.

Drainage and latrines.—The drainage of the hospital is quite satisfactory. The dry-earth system obtains in all the latrines, and the poudrette daily removed to a distance and buried. Drainage and latrines.

Hospital water-supply.—The hospital water-supply is good and abundant, and is obtained from the Seven Wells, a well in the Government House compound, and from the fountains of Red Hills Tank water. Hospital water-supply.

General conclusions. *General conclusions.*—The health of the men generally has been very good throughout the past year. No deaths have occurred in hospital, and nothing has taken place with reference to the health of the corps to call for any special remark.

Diseases. *Diseases.*—The prevailing diseases have been fevers, rheumatic affections, dysentery, bronchitis, diarrhœa, abscess, and contusion. Almost all the cases were of mild form, and readily yielded to treatment.

Deaths. *Deaths.*—No deaths occurred in hospital. Two casualties occurred out of hospital: one from valvular disease of the heart and the other from chronic pneumonic phthisis.

Deputy Surgeon-General Burn inspected the Body Guard on the 16th October 1873, and reported as follows :—

Barracks. *Barracks.*—The Body Guard are provided with neither barracks nor lines. The men live where they please, and are much scattered. Two European Serjeants and Five East Indian Farriers and Trumpeters live with their families in a large tiled roof barrack.

Sanitary condition of all Buildings. *Sanitary condition of all buildings.*—There is a small latrine for the men on duty in the stables or sick lines. Coal-tar and dry earth are in use. The latrine is clean and free from all smell. There are no cess-pools or foul drains. The excreta are removed and buried by one of the three toties always on duty. The two cells are clean and ventilated by a door and two wall ventilators in each cell. The guard-room or standard guard has door and window ventilation, but it is somewhat defective.

Conservancy. *Conservancy.*—The vicinity of the stables or horse lines is fairly well conserved. There are no surface drains, but two main covered drains receiving the small drains from the Serjeants' and other quarters unite and run into the Cooum. The surrounding neighborhood is conserved by the Municipality.

Hospital. *Hospital.*—The present hospital was condemned some 17 years ago, and a new building sanctioned, but not built. The present low building is in close proximity on two sides, north and west, with the stables; on the east with the Farriers' and Trumpeters' quarters; and on the south stands the place of arms and standard guard. The building, such as it is, is in good repair and clean, having been recently lime-washed. It has a tiled roof and granite floor. The drainage is as above noticed, and seemingly not much assisted by the surrounding level nature of the ground. There are two wards: one is ventilated by two large and one small door, and by the same number of windows. The other is used as an office and surgery only, and has one door and two windows. In the former there are two roof ventilators; in the latter, one only. The former has 660 superficial and 7,260 cubic feet, affording, in the last 12 months, to an average of 6·25 daily sick 105·52 square and 1016·16 cubic feet per patient. The maximum sick on any one day was 36 during the prevalence of dengue; the minimum none. The latrine is clean and dry earth and coal-tar in use. The excreta are removed and buried as noted in the regimental latrine. There are no foul drains or cess-pools. No disease, epidemic or otherwise, has originated in the hospital. Wounds usually heal favorably, and cases do well. Discipline, quiet, and order are maintained.

13th Regiment Native Infantry.

Station—Madras (Royapooram).

Arrived from Palaveram March 5th, 1873.

Average strength	816
Do. do. present	652
Admissions	650
Daily sick	24
Deaths in hospital	3
Do. out of hospital	3
Pensioned	3
Sick leave	8

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Stations.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Cannanore	36·04	1·14	·50	1·64	...
1871 ...	Hong-Kong	125·23	4·20	1·05	...	1·28
1872 ...	Palaveram	89·80	3·63	1·21	2·88	2·88
Average ...	.....	83·69	2·99	·92	1·50	1·38
1873 ...	Madras	99·69	3·68	·73	·36	·98

Surgeon R. W. Power, B.A. and M.D., held medical charge during the year, and reports as follows :—

Climate.—The climate of Madras during the year 1873 was hot but equable, and agreed with both officers and men. Climate.

Marches.—The regiment marched from Palaveram to Madras on 5th March 1873. Marches.

Sepoys' huts.—The sepoys' huts have only been erected a few years ago, and are I believe constructed according to regulation. The drainage in the lines is good. The drains are flushed every morning, and the sanitary arrangements are altogether satisfactory. Sepoys' huts.

Nuisances.—None observed. Nuisances.

Water-supply.—Water-supply of good quality obtained from wells, and sufficiently abundant. Water-supply.

Sanitary arrangements.—On the whole the sanitary arrangements were satisfactory. No local causes of disease required removal. Sanitary arrangements.

Diet.—Provisions have been moderately cheap and plentiful. Vegetables were not very abundant. The sepoys were allowed rice-money according to regulation. Diet.

Clothing.—The men's clothing was well suited to the climate. No recommendations were made on the subject. Clothing.

Foot-soreness.—The men very often came to hospital with blisters or sores on their feet, resulting from wearing boots without socks. They are not supplied with socks. I generally excused them from wearing boots for a few days. Only very few men were admitted with foot-soreness. Foot-soreness.

Duty and exercises.—The usual guard duties, parades, &c., which did not exercise an unfavorable influence on the health of the men. Duty and exercises.

Average nights in bed 4·08.

Drill.—The men were generally paraded three or four days every week. Parade, as a rule, lasted about an hour each time. The men were not drilled too much. Drill.

Lock-up rooms and prison cells.—Sanitary conditions satisfactory. No recommendations were made on the subject. Lock-up rooms and prison cells.

Vaccination.—Owing to the whole regiment having been vaccinated in China during 1871, the men were protected against small-pox. No man got small-pox. Vaccination.

Epidemic diseases.—During March, April, and May there were over 200 admissions into hospital with dengue, which was of a mild form; as a rule required no treatment; and I cannot remember a single case which was followed by heart disease or other serious complaint. Epidemic diseases.

Ventilation of hospital.—Ventilation satisfactory. No recommendations have been made on the subject. Ventilation of hospital.

Drainage and latrines.—The hospital latrine is large enough for ordinary occasions. The floor inclines outwards, which sometimes causes the entrance to be wet. Although its condition is satisfactory, with the view of introducing the dry-earth system I recommended a shed, for the purpose of keeping dry earth, should be erected. This has not yet been done, and it is not urgently required. Drainage and latrines.

Hospital water-supply.—Water-supply good. Hospital water-supply.

General conclusions.—The regiment has been healthy on the whole during the year. General conclusions.

Diseases.—Ague was of a mild type. A few obstinate cases of diarrhœa and dysentery were treated towards the end of the year, and from the latter one death occurred. The admissions from chest affections were small. Diseases.

Deaths.—There were three deaths during the year, one from apoplexy, dysentery, and phthisis pulmonalis. Deaths.

Deputy Surgeon-General Burn inspected this Corps on the 2nd October 1873, and remarks as follows :—

Barracks.—The lines are situated in close proximity to the sea, some few feet only above sea level, and somewhat less above the level of the surrounding country. They contain 737 huts, with an average population of 2,601, or 3·54 persons in each hut, the maximum in any one hut being 10, the minimum 1. The lines are constructed in accordance with the hutting regulations, and are kept clean by conservancy carts and scavengers. The walls are of masonry, and lime-washed twice a year. The drains on the sides of the streets are brick and mortar, and about 2 feet deep, and these drains appear to effectually supplement the natural, though slight, slope of the ground. Barracks.

Sanitary condition of all buildings.—There are two latrines belonging to the Municipality in the vicinity of the lines—one at a little distance to the north-east, the other to the north-west; the former intended for males, the latter for females. They are said to be made use of by the men and families, but probably to no great extent. They consist merely of a bare sandy space of ground enclosed within four walls, the excreta being removed daily by the municipal conservancy carts. The families in the lines chiefly use their court-yards, which are also cleansed daily, each family paying a toty a small sum monthly. There are no Sanitary condition of all buildings.

cess-pools or foul drains anywhere. The excreta are carted to a place near the ball practice butts, more than a mile distant. No dry earth or coal-tar is used. The guard-room is cleaned and tolerably ventilated by doors and windows, and there is a cell with a grated door opening off and into the guard-room.

Conservancy. *Conservancy.*—The lines are in the close neighborhood of the Monegar Choultry, of the Distillery, the Bullet Factory, and of the Medical Depôt. Their immediate vicinity is fairly cleaned. The ground is rough, but does not afford cover for nuisances.

Hospital. *Hospital.*—The hospital is a brick-and-mortar building, raised about two feet from the ground and with a brick floor. It consists of two wards divided by the office and surgery. The building fronts and runs along the western edge of the parade ground at right angles to the guard-room and place of arms. The northern or medical ward is 70′ × 19′ 6″ × 10′, the latter measurement from the floor to the wall plates only, the roof space being omitted. It has four doors, each 7·35 × 4 feet, and 12 windows, 5 × 3·50 feet. The south or surgical ward is 7′ 6″ × 19′ 6″ × 10′, the latter measurement also to the wall plates only. It has 4 doors and 10 windows, all corresponding in size to those of the northern ward. There is no other ventilation. The roof is tiled. The average daily sick during the last 12 months has been 28·34 to an average present strength of 655·48. The hospital has consequently afforded space in ratio of 100·82 superficial and 1,301·48 cubic feet per patient including roof space. The maximum number of sick on any one day was 140 in October 1872 during the dengue epidemic, the minimum 9 in September 1873. There are deep masonry drains and a pucka well containing good water and covered with a grating in the hospital compound. Drinking water is, however, brought by puckallies from a well on the parade ground. The latrine is kept clean. Coal-tar is used but no dry earth, nor is there a dry-earth shed. The Officer Commanding made an application on the subject in July last, and attached is a letter* in reply from the Examiner of Commissariat Accounts. The conservancy carts remove the excreta twice daily. No epidemic has broken out in the hospital. Wounds heal readily and cases recover favorably. Discipline is fairly maintained.

17th Regiment Native Infantry.

Station—Madras (Perambore).

Arrived from Kurrachee, January 14th, 1869.

Average strength	707
Do. present	694
Admissions	483
Daily sick	13
Deaths in hospital	1
Do. out of hospital	1
Pensioned	7
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Madras	25·58	1·31	1·31	3·65	...
1871	Do	26·49	1·01	1·15	...	...
1872	Do.	171·44	3·37	·42	...	·14
Average ...	.....	74·50	1·89	·96	1·21	·4
1873	Madras	69·59	1·87	·28	·99	·56

Surgeon L. C. Nanney was in medical charge during the year, and reports as follows :—

Climate. *Climate.*—Nothing unusual in the climate and seasonal changes of the year. The causes detrimental to health alluded to in last year's report, *viz.*, sewage farm, burning and burying grounds, bad drainage, &c., still exist.

* Omitted here.

Marches.—The corps has been stationary. Marches.

Sepoys' huts.—The drainage and ventilation have frequently been reported on. The barrack-rooms and guard-rooms are of the usual description. The construction of the huts is exceedingly good, and the open stone-drains are daily flushed with water. Sepoys' huts.

Nuisances.—No nuisance whatever in the lines. Nuisances.

Water-supply.—The water is obtained from two fountains, one for each wing, supplied by the Red Hills Tank. Water-supply.

The quantity is ample and the quality good.

Sanitary arrangements.—The sanitary arrangements in the barracks and lines have been properly attended to. There are no local causes of disease requiring removal. Sanitary arrangements.

Diet.—The sepoys diet themselves. Vegetables have been abundant. The troops have received compensation on account of dearness of grain. Diet.

Clothing.—The clothing has been sufficient and adapted to the climate. Clothing.

Foot-soreness.—The men frequently suffer from foot-soreness. Foot-soreness.

Duty and exercises.—The nature and amount of the duty performed by the troops has been sufficient to keep them in a state of health. The average number of nights in bed has been 3·17. Duty and exercises.

Drill.—The men are drilled morning and evening with occasional parades. Saturday is the weekly holiday. Drill.

The influence has not been detrimental.

Lock-up rooms and cells.—The cells and lock-up rooms are of the usual description, the former being somewhat small and close. The men are not kept in sufficiently long enough to feel the ill effects. Lock-up rooms and cells.

Vaccination.—Vaccination has been duly kept up. Vaccination.

No cases of small-pox have occurred amongst the sepoys. One camp follower was attacked, but recovered. Vaccination—successful 92 cases (amongst the families), unsuccessful 10; total 102. Re-vaccinations (in men) with unsatisfactory marks—successful 8, unsuccessful 8; total 16.

Diseases.—No epidemic has occurred during the year. No unusual admissions from dysentery and diarrhœa. The number of cases of ague has been in excess in the months of March and November. Diseases.

No defects anywhere.

Deaths.—Two deaths occurred among the men—one of stricture of intestines and the other from anæmia. Deaths.

Two native officers died—one from heart disease, the other was found dead by the road-side.

Ventilation of hospital.—The ventilation of hospital is good. There has been no overcrowding of hospital wards. Ventilation of hospital.

The condition of the drainage is good.

The dry-earth system is not carried out as fully as it might be. I did not make any recommendations, as the men were preparing for the camp of exercise during the short period I had charge of the regiment.

Hospital water-supply.—The water-supply of the hospital is also from the Red Hills Tank, and is excellent and abundant. Hospital water-supply.

General conclusions.—The health of the men during the year has been exceedingly good, no epidemic of any kind having occurred. I see no reason for considering the climate of Perambore unhealthy. There is a good deal of stagnant water in the neighbourhood, but the ground is open and no ill effects appear to have resulted. The men seem to be steady and well behaved, which tends to preserve them in a state of health. I can make no suggestions as yet, having been only three weeks in charge of the regiment, during which time the men were occupied with preparations for the camp of exercise. General conclusions.

Deputy Surgeon-General Burn inspected this Regiment on the 14th October 1873, and reports as follows:—

Barracks.—The lines of the regiment are situated in Perambore at no great height above sea level; indeed, the site is said to have been a lagoon in former days. The lines are divided into north and south sections, the former occupied by the left, the latter, about 400 yards distant, by the right wing of this regiment. Broad streets separating the huts in the former run due east and west, in the latter north and south. There are 792 huts in all, built of brick and mortar with tiled roofs, and arranged generally in accordance with the hutting regulations. There is an average of 5 persons in each hut, with a maximum of 11 and a minimum of 1 in any one hut. Each hut has a superficial area of 171 square feet and a height of 13·50 feet. The ventilation is defective, the huts being built back to back. The court-yards of these huts mostly contain a small bricked-in space, which serves for a latrine, and an open space adjoining for a bathing place. Shallow pucka drains run down either side of the streets; these are flushed daily, and they are, as well as the lines, generally scrupulously clean. The artificial is but little aided by natural drainage, the surrounding ground being very flat, though the lines themselves are on a raised platform. Barracks.

Sanitary condition of all buildings.—There are municipal latrines in the vicinity of either wing, that is due west of the section occupied by the left wing and due east of that occupied Sanitary condition of all buildings.

by the right wing. They are merely open spaces enclosed within four walls; one is intended for men, the other for women. The latter is not much used, the small structures in the court-yards already noticed being preferred; and these are kept clean by the daily removal of their contents by toties and conservancy carts, the former being paid a small sum monthly by the parties concerned. The guard-room is at the eastern extremity of the right wing north place of arms. It is 18′×20′×21′ and ventilated by three doors and six windows. The Vernacular School is held in the southern verandah of the south place of arms of the right wing. The boys wear uniform and caps, and have a singularly neat appearance. The English School and the Girls' School have each a room in what was formerly the Quarter-master Sergeant's quarters. There are two cells, each 8′×8′×10′ 6″, each with a door and two barred windows or ventilators immediately under the wall-plates. A small latrine is attached to each. The lines and buildings are lime-washed twice yearly.

Conservancy. *Conservancy*.—The conservancy of the neighbourhood is in the hands of the Municipality. The lines are in the vicinity of burying and burning grounds, cart-stands, a sheep market, brick-kilns, dirty streets, and bad surface drainage. These matters have been frequently represented, and are stated to have been somewhat improved of late.

Hospital. *Hospital*.—The hospital is a brick-and-mortar building with a tiled roof, and raised about two feet from the ground. It fronts east, and is about 20 paces north of the right wing section of the lines, with the parade ground in its rear. The compound is neatly laid out with flowers and shrubs, and surrounded by a low wall surmounted by railings. There are three wards. The main ward, the only one occupied, is 62′×15′ 6″×14′, exclusive of roof space. It is ventilated by two doors, 7′6″×3′6″, and 14 windows, 2′6″×3′6″ each, and there are 12 T-shaped roof ventilators. The north and south wards are merely enclosed rooms, taken from the 10-feet verandah which surrounds the building, and only used as store-rooms. One contains the bathing tubs. There has been during the year an average daily sick of 11·92 to an average strength of 662·66. Each patient has had in ratio of 80·62 superficial and 1,330·24 feet of cubic space. The latter includes roof measurement. The maximum in hospital on any one day was 23, the minimum 2. There is a large pucka well in the hospital compound, but the water is brackish. There is also a Red Hills fountain in the compound and close to the back verandah, giving an ample supply of good water. There is no artificial drainage, but rain water disappears rapidly, partly by absorption and partly owing to the slight slope of the ground. The latrine is worked on the dry-earth principle, but there is no earth shed. Coal-tar is also in use. The excreta is removed twice daily. There are no cess-pools or foul drains. The dead-house in the south-west angle of the compound has been converted into an infectious ward. The cook-house stands due north of the hospital. The surgery and office is in the south-east angle of the compound. This building contains also a separate store-room. No epidemic has originated in the hospital. Wounds heal and cases recover favorably. Discipline, quiet, and order are maintained.

37th Regiment Native Infantry.

Station—Madras (Vepery).

Arrived from Moulmein March 16th, 1872.

Average strength	695
Do. present	689
Admissions	542
Daily sick	18
Deaths in hospital	4
Do. out of hospital	6
Pensioned	26
Sick leave	7

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Moulmein	166·27	2·66	3·25	·44	1·92
1871 ...	Do.	173·21	5·03	3·89	...	1·46
1872 ...	Madras	181·89	3·98	1·26	...	4·74
Average ...	.....	173·79	3·89	2·80	·14	·270
1873 ...	Madras	78·66	2·61	1·43	3·74	1·007

The following medical officers have been in charge during the year :—

Surgeon-Major T. S. Howell.
Do. J. M. Joseph, M.D.

The last-named reports as follows :—

Climate.—The climate of the station has been on the whole fairly good, and, as far as I am able to judge, has not had any unfavorable influence on health and disease. Climate.

Marches.—None. Marches.

Sepoys' huts.—The lines of the 37th Regiment Grenadiers are situated on low ground, badly built, badly ventilated, and badly drained. The position is unfavorable on account of the lowness of the ground, and during the rainy season, parts of them are under water. Sepoys' huts.

The ventilation of the guard-rooms is good, but that of the lines is bad; and as the lines are situated on low ground and surrounded by houses and streets densely populated, the air cannot be pure; the position of the lines renders the drainage bad and insufficient. Frequent correspondence has taken place on this subject, but without any result.

Nuisance.—None, except as regards drainage. Nuisance.

Water-supply.—The supply of water is obtained from tanks only; it is sufficient and of fair quality. Water-supply.

Sanitary arrangements.—The sanitary condition of the lines has been attended to as much as possible, and care taken by the regimental authorities to keep them clean; and, with the exception of the defects mentioned previously, there are no local causes liable to produce disease. Sanitary arrangements.

Diet.—The sepoys diet themselves. Vegetables were abundant during the year, and compensation is allowed for the dearness of rice monthly. Diet.

Clothing.—No changes were required. Clothing.

Foot-soreness.—The men frequently come to hospital with foot-sores, chiefly owing to the non-protection of the feet by socks. Foot-soreness.

Duty and exercises.—The duties have not been over-severe; but, as the health of the corps has suffered much on foreign service, some of the men frequently come into hospital from a state of exhaustion and fatigue from duty. Average number of nights in bed, 2·80. Duty and exercises.

Drill.—The drills are usually morning and evening, and generally last an hour. The drills have had no unfavorable influence on the health of the men. Drill.

Lock-up room and prison cells.—They are in a satisfactory condition with reference to these points, and no defects have been brought to my notice. Lock-up rooms and prison cells.

Vaccination.—Vaccination has been regularly kept up in the corps, and in consequence of the unsatisfactory state of the marks of former vaccination, 61 men and 131 children have been revaccinated. Vaccination.

Successful...	161
Unsuccessful	31

No deaths from small-pox.

Diseases.—No epidemic diseases.

The prevailing diseases were intermittent fever, rheumatic affections, dysentery, diarrhœa, boils, and cutaneous diseases. Diseases.

There has been only one case of phthisis pulmonalis admitted. Cases of bronchitis and catarrh have been numerous owing to atmospheric influence.

Deaths.—The four deaths in hospital were from hæmiplegia, general dropsy, anæmia, and dysentery. Deaths.

Hospital ventilation.—The defective ventilation of the hospital has been the subject of correspondence, but it still continues in the same state. Hospital ventilation.

The hospital wards are occasionally overcrowded on account of the insufficiency of the accommodation.

Drainage and latrine.—The hospital latrine is in pretty good order, but drainage from it bad; the dry-earth system has been efficiently carried out. Drainage and latrine.

Hospital water-supply.—The supply is obtained from tanks in sufficient quantity and of fair quality. Hospital water-supply.

General conclusions.—The health of the corps having suffered severely on foreign service, great many of the men are in a weakly and anæmic state of health, and frequently come to hospital with attacks of ague and general debility; the change to Madras from Burmah will in all probability, in course of time, re-establish the health of the troops. General conclusions.

Deputy Surgeon-General Burn inspected this Regiment on the 10th October 1873, and reports as follows:—

Barracks.

Barracks.—The lines of the regiment are divided into north and south sections by the Vepery High Road, the right wing occupying the south, and the left wing the north huts. The cleanliness of the lines is attended to by four conservancy carts and eight sweepers. The huts themselves consist of low mud walls with grass and leaf that cling, and are constructed in general accordance with the hutting rules. There are 678 huts in the lines, and an average of 2·57 persons in each hut, the maximum number occupying one hut being 6, the minimum 1. The site of the lines is low, scarcely above sea level, and in heavy rains it is under water, and thus the fall of the mud walls of individual huts is not unfrequent. Drainage by natural configuration of the ground scarcely exists, and it is artificially supplemented by open shallow kutcha drains. The erection of new lines has been contemplated for many years. Both sections of the lines are near a Roman Catholic Cemetery still in use.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—There is a large brick-and-mortar regimental latrine partitioned off for men and families in the north-east corner of the north section of the line. Dry earth is in use, and two conservancy carts and four sweepers remove the excreta twice daily. There are no cess-pools or foul drains in connection with the latrine which appeared fairly conserved. The barrack guard-room is comprised in a small bungalow on the edge of the parade ground, having a central room 80′×21′×18′. There are two other small rooms 21′×16′ 11″, the whole surrounded by a verandah. The building is under repair. There are two prison cells separated by a wall common to both with a small latrine to each. Each cell measures 9′×9′×12′, and is ventilated by a door and by a window near the roof 3′×1′ 5″. They are situated in a small wall-surrounded compound.

Hospital.

Hospital.—The hospital is situated within a few paces of the huts of the south section of the lines fronting south and having the Vepery High Road at its rear. It is a brick-and-mortar building with a tiled roof, and raised about 1½ feet from the ground. It consists of two wards one 94′ ×15′ 9″ ×12′ 6,″ with two doors 8′×4′ and eight windows 5′×3′ each. The other, only now used as an office and surgery, 25′×15′ 9″×12′ 6,″ with one door 8′×4′ and three windows 5′×3′ each. The height is only taken from the floor to the wall plates, the roof space being omitted. A not very perfect system of roof ventilation runs over both wards. A north and south verandah extends the length of the hospital. There are four corner verandah rooms enclosed off the extremities of either verandah 10′×10′ each. Of these, one is used to lodge the hospital guard, another as a store-room, another as a lumber and occasionally as a bath-room, and another as an epidemic ward, for which purpose it is ill-adapted. The average daily sick in hospital during the last 12 months has been 17·06 to an average present strength of 585. No. 1 ward has alone been occupied, and has thus afforded a ratio of 86·25 superficial and, including roof space, 1337·52 cubic feet per patient. The maximum number of sick in hospital on any one day was 46, the minimum 6. There are two out-houses—a latrine and a cook-house. The former a small building in the north-east corner of the hospital compound, in which dry earth is partially in use, as also coal-tar and Macdougall's powder. The cook-house in the corresponding north-west corner appears to have been formerly used for a cook-room, and for a dead-house; it now contains the dry earth used in the latrine, and is occupied by the hospital toties. It is out of repair, as is also the hospital roof. Water is supplied to the hospital by puckallies from the neighboring fountains. The drainage corresponds with that of the lines. There are no cess-pools. The drainage from the latrine runs into a covered bucket sunk in the ground and outside the wall; it receives only the soiled water used in washing the floor of the latrine, and is emptied into the conservancy carts. The excreta is removed daily by these conservancy carts. No epidemic has originated in the hospitals. Wounds heal and cases recover readily. Discipline is maintained, quiet and order observed, and orders readily obeyed.

28th Regiment Native Infantry.

STATION—VELLORE.

Arrived from Kurnool December 31st, 1868.

Average strength	673
Do. present	673
Admissions	356
Daily sick	12
Deaths in hospital	...
Do. out of hospital	...
Pensioned	53
Sick leave	9

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Vellore	76·71	4·26	1·06	3·34	...
1871 ...	Do.	68·52	3·45	·95	2·11	2·87
1872 ...	Do.	121·56	2·89	·85	...	1·27
Average ...	.....	88·93	3·53	·95	1·81	1·38
1873 ...	Vellore	52·89	1·78	...	7·89	1·33

Twenty changes took place in the medical charge of this corp during the year between the following Medical Officers:—Surgeon-Major Wilkins, Surgeon Fox, Surgeon Johnson, Surgeon-Major Dickinson, and Surgeon-Major Busteed. The last-named officer reports as follows:—

Climate.—There was nothing unusual in the climate of the station during the year, and no obvious influence on health and disease. Climate.

Marches.—Stationary during the year. Marches.

Sepoys' huts.—The lines of native huts run east and west on a piece of low and very flat ground. I am not prepared to say that the position is unhealthy. It certainly looks so. Sepoys' huts.

The huts are small, low, dark, and windowless, and to European ideas the general construction is utterly opposed to comfort or health.

Ventilation and drainage in the place-of-arms and guard-room are good. In the lines they are very bad. In the construction of his hut the native desires to secure himself against all ventilation. The low, flat position of the lines is opposed to efficient drainage, but conservancy carts and sweepers keep the place as clean as circumstances will admit of.

Nuisance.—The latrines in the lines have been regularly and carefully looked after. Nuisance.

Water-supply.—All the wells in the place are brackish, with the exception of two on which the European residents are dependent. The natives obtain their supply from a large tank near the lines. The water is slightly muddy, but is otherwise of good quality. Water-supply.

Sanitary arrangements.—The conservancy arrangements of the neighborhood are very good. Sanitary arrangements.

Diet.—Provisions cheap and plentiful, native vegetables abundant. Compensation for dearness of rice allowed as usual. Diet.

Clothing.—Sufficient and suitable. Clothing.

Foot-soreness.—The men wear cheap boots of very inferior hard leather. They wear no socks. Before enlistment they are quite unaccustomed to boots; as is to be expected, foot-soreness is very common. When it occurs the man is allowed to discontinue wearing his boots as many days as may be necessary. Foot-soreness.

Duty and exercises.—Duties light and favorable to health. Duty and exercises.

Number of nights in bed 4·6.

Drill.—Drill in the cool season five days a week, from 5-45 to 7 A.M., with Adjutant's drill in the evenings. In the hot season twice a week. No injurious effect on health. Drill.

Lock-up rooms and prison cells.—Good. Lock-up rooms, &c.

Vaccination.—Vaccination is fully kept up. One case of small-pox occurred in May. I am unable to say if he had been properly vaccinated or not. Vaccination.

Total number vaccinated in the lines during the year, 212.

Revaccination has not been practised.

I joined in October. I was ill in the latter part of the month; and, from the circumstances of the birth register being kept at the Station Staff Office instead of at the hospital, it was not till early in December I made the discovery that about 85 children had been born during the year, and that none of them had been vaccinated. I visited the lines twice a week, accompanied by vaccine subjects obtained through the Civil Surgeon. I met with the usual difficulties of course, but three annas a head (out of my own pocket) changed the sepoy's view on the important subject, and before the end of the month I had vaccinated over 100 cases with my own hand. With the exception of about 20 children, some very young and some sickly, I believe I completed the vaccination of the whole child-population of the regiment. It is absolutely impossible to speak with certainty on this subject. The families of sepoys' friends and relations form quite a floating class. The vaccination of the regiment may be complete one month, and you may find any number of unprotected in the lines next month.

Diseases. *Diseases.*—We had no epidemic during the year and no unusual sickness.

There was only one case of phthisis—disease due most probably to hereditary tendency.

The other chest diseases were not numerous, and were caused apparently by changes of climate.

Deaths. *Deaths.*—There were no deaths.

Hospital ventilation. *Hospital ventilation.*—The hospital is somewhat low and dark, but there is sufficient ventilation.

No overcrowding.

Drainage and latrines. *Drainage and latrines.*—Cleanliness enforced.

Dry-earth system adopted.

Hospital water-supply. *Hospital water-supply.*—The same as the general supply of the regiment.

39th Regiment Native Infantry.

STATIONS—HEAD-QUARTERS AND LEFT WING, PALAVERAM.

RIGHT WING, MOULMEIN.

DETACHMENT, ST. THOMAS' MOUNT.

Arrived from Bangalore March 16th, 1873.

Average strength	689
Do. present	676
Admissions	547
Daily sick	19
Deaths in hospital	1
Do. out of hospital	1
Pensioned	26
Sick leave	28

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Bangalore	82·97	2·90	1·38	2·91	3·52
1871 ...	Do.	67·52	1·71	·68	4·79	2·05
1872 ...	Do.	104·84	1·81	·86	2·87	2·73
Average ...	.....	85·11	2·14	·97	3·52	2·76
1873 ...	Palaveram	80·91	2·81	·29	3·77	4·06

Surgeon Preo Nath Mookerjee was in medical charge during the year, and reports as follows :—

Climate. *Climate.*—The climate is much the same as that of Madras. During the hot weather the average temperature is about 94° and during the cold it is about 72°; the rainfall has not been very heavy.

The men have been very healthy; most of the admissions were from skin diseases and slight cases of ague.

Marches. *Marches.*—None.

Sepoys' huts. *Sepoys' huts.*—The lines are situated in a low and unhealthy-looking locality; they are always tumbling down; the greater portion of the men live in the bazaar.

The ground on which the lines are situated is not so well drained. The floors of the hut get very damp even during a slight shower of rain. The men are obliged to use straw under the mats to keep out the damp; the huts are of the usual type, generally overcrowded, and, as a rule, badly ventilated; each hut has a small enclosure in front and a latrine on one side; there are scratch drains running alongside the huts; these are of no use because they are constantly getting blocked up.

The huts are thatched and sloped roof situated within a small enclosure. Each row of huts is separated by a street about 12 feet wide. The drains are mere scratches running alongside the huts; foul water stagnates, and would become very injurious to health, but that

they are kept clean by the sweepers. The defect has been brought to the notice of the authorities; but, this being a temporary station, nothing as yet has been done to remedy the defect.

Nuisance.—None, with the exception of what has been referred to above. Nuisance.

Water-supply.—Some of the wells have good water and sufficient in quantity. Water-supply.

Sanitary arrangements.—The lines are kept as clean as possible by the Quartermaster's establishment, and frequently inspected by that officer and the medical officer in charge. Sanitary arrangements.

Diet.—Provision cheap and plentiful. Diet.

Clothing.—Clothing sufficient and adapted to the climate. Clothing.

Foot-soreness.—None. Foot-soreness.

Duty and exercises.—The duties have been rather severe; 1·2 nights in bed. Duty and exercises.

Drill.—The average number of drills per week has been five; the regiment parades at 5½ and drills for half an hour; the drills have not exercised any injurious influence on the health of the men. Drill.

Lock-up and prison-rooms.—The sanitary condition of the cells has been satisfactory. Lock-up and prison-rooms.

Vaccination.—Twenty-nine sepoys have been vaccinated during the year, all successfully; 30 males of the families have been revaccinated, of these 21 have been successful; 22 females, successful 15. Total vaccinated 81, successful 65. Vaccination.

Two cases of small-pox of a mild type occurred amongst the men while at Bangalore.

Diseases.—No epidemic disease; there were a good many cases of skin diseases, and probably owing to change of climate from Bangalore to Palaveram. Diseases.

The total admission for the past year is considerably less than that of the year before; this is owing to the very good health the men enjoyed while at Palaveram.

The admissions stand thus:

Head-quarters and left wing	219
Right wing	310
Detachment at Mount	18
Total ...	547

The right wing caused the most admissions, being on foreign service for nearly a year and-a-half.

Amongst the 219 admissions in the left wing and head-quarters of the regiment, about 64 were caused by diseases of the skin, ulcers, boil, abscess, and itch.

The next in order of frequency is ague, mostly of a mild type, causing on an average five or six days' stay in hospital, due more to difference of temperature than malaria.

There were 23 admissions from debility; these were the men who were invalided for being old and worn out and unfit for further service.

The rest of the diseases cannot be attributed to any particular cause.

Chest diseases, such as bronchitis and pneumonia, were climatic.

Deaths.—Amongst the men at Palaveram there was not one death during the whole year in hospital, but one man died out of hospital while on sick leave for Bright's disease, and probably succumbed under it. Deaths.

In the Mount Detachment there were 18 admissions and 1 death.

There was an old man who died rather suddenly, probably from fatty heart.

In the right wing there were 310 admissions, but no death; the largest item is ague, causing 76 admissions; the next is dysentery, giving 42 admissions; and after this is chronic rheumatism with 27 admissions.

Hospital ventilation.—Ventilation good; no representation was made. Hospital ventilation.

Men overcrowded.

Drainage and Latrines.—The latrines are cleaned out daily by the regimental sweepers. Dry-earth system has been carried out in the hospital with success. Drainage and latrines.

Hospital water-supply.—Good. Hospital water-supply.

NORTHERN DISTRICT.

Average strength	2,822
Do. present	2,658
Total admissions	2,522
Daily sick	111
Deaths in hospital	12
Do. out of hospital	8
Pensioned	54
Sick leave	67

The following return shows the rates of sickness, deaths, and invalding, as contrasted with previous years :—

Year.	Rate per cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	54·03	2·24	1·32	1·87	·36
1871	59·12	2·82	1·02	1·85	1·55
1872	125·18	4·08	1·38	1·98	1·56
Average ...	79·44	3·04	1·24	1·90	1·15
1873	94·88	4·17	·70	1·91	2·37

The following corps were serving in the division on the 31st of December 1873 :—

2nd Regiment Native Infantry.
7th do. do.
12th do. do.
41st do. do.

Deputy Surgeon-General Blacklock was in charge of this district up to the time of his death, viz., 11th February 1873; Surgeon-Major Duff acted till 12th March 1873, when he was succeeded by Deputy Surgeon-General Burn, who reports as follows :—

Seasonal phenomena.

Seasonal phenomena.—The rainfall was sufficiently abundant in most parts of the Northern District, though it appears to have partially failed in Kimedy, Palcondah, Cocanada, and in some other parts. Some extremes of heat and cold were naturally experienced in so extensive a district, including tracts of such varied elevation, but these were not opposed to the experience of former years, nor did they abnormally affect the public health. At Vizagapatam, Berhampore, Chicacole, Masulipatam, and Bimlipatam the general health of the people was good. It was injuriously influenced by the presence of dengue at Kimedy and Vizagapatam, and endemic malarial fever as heretofore, was everywhere more or less active.

Necessaries of life.

Necessaries of life.—The crops were good and plentiful in Vizagapatam, Chicacole, Rajahmundry, Ellore, and Kimedy. They were less abundant in Masulipatam, Cocanada, and Berhampore. Prices were everywhere moderate in the early part of the year, but began to rise towards its close owing to the prospect of large exportation to the famine provinces in Bengal.

Health of the Native Troops.

Health of the Native Troops.—The health of the Native Troops has been generally favorable. The 2nd Regiment Native Infantry was weakly in the early part of the year, the result of dengue when in Vizagapatam towards the close of 1872. The 12th Regiment Native Infantry has been the least health-efficient regiment in the district. It returned in a weakly state from foreign service in 1872, and was gradually regaining tone, when an invasion of dengue set in in February 1873 and again in the last quarter of the year. The 7th Regiment Native Infantry is also a foreign-service regiment. The health of the 4th Regiment Native Infantry has improved since the preceding year.

Admissions.

Admissions.—Out of an average strength of 2860·16, the sick treated were in ratio of 96·92 per cent. to strength, and deaths in and out of hospital 1·39 per cent. The ratios are largely influenced by the Native Infantry Details at Vizagapatam, composed in a great measure of men absent from their proper regiments on sick certificate.

The principal diseases and causes of death were—

	Total Treated.	Deaths in Hospital.
Fevers (exclusive of dengue)	631	3
Dengue	382	...
Rheumatism...	156	...
Phthisis pulmonalis...	11	2
Diseases of the lungs	89	...
Bowel complaints	199	1
Skin diseases	423	...
Debility	81	1

Deaths.—The largest amount of deaths were due to fever and phthisis pulmonalis. Deaths.

The following exhibits the ratio per cent. of deaths to the total treated for each disease :—

	Percentage of Deaths.
Fevers...	0·48
Phthisis pulmonalis	18·18
Bowel complaints	0·50
Debility	1·23

Invaliding and sick leave.—There were 68 men invalided or pensioned and 72 granted sick leave during the year from among the native troops serving in the Northern District. These were contributed by the various regiments in the following proportions :— Invaliding and sick leave.

—	Pensioned.		Sick Leave.	
	Number.	Ratio per cent. to Average Strength.	Number.	Ratio per cent. to Average Strength.
2nd Regiment Native Infantry...	1	0·28	2	0·56
7th do. do. ...	20	2·84	10	1·42
12th do. do. ...	9	1·26	17	2·39
14th do. do. ...	24	3·44	8	1·14
Native Infantry Details	14	36·84	5	13·15

Cholera.—There were no cases during the year, nor did any cases occur among the civil population at the stations occupied by the troops. Cholera.

Small-pox.—There were no cases among the troops, though it prevailed at Vizagapatam to a considerable extent among the civil population, and among the families of the 7th Regiment Native Infantry in the third and fourth quarters of the year, and extensively among the civil population at Vizianagram; three followers only of the 12th Regiment Native Infantry were attacked. Small-pox.

Malarious fevers.—These fevers were not unusually present, and were everywhere of a mild type. In the right and left wings of the 2nd Regiment Native Infantry at Berhampore and Sumbulpore, respectively, about one-third of the admissions into hospital were due to fever. Malarial fever is endemic in the district, though more active in the cold season than at any other time, and more intense in the western parts, and in the hill tracts of Jeypore than elsewhere. There are, however, exceptions to this, for in the Cocanada District it is reported to have been "one of the chief sources of mortality in the district." Neither this nor the other districts just noticed are, however, occupied by troops. Malarious fevers.

Movements of Troops.—The first day of the year under notice found the 2nd Regiment Native Infantry on the march from Vizagapatam by wings—the right to Berhampore and the left to Sumbulpore. Neither experienced any unusual sickness on the road. The former reached its destination on the 9th January, the latter on the 5th February. Foot-soreness was especially present in the right wing, and in both it was attributed to the want of socks. Movements of Troops.

Huts and lines.—No change in the year. Huts & lines.

Hospitals.—No change in the year. Hospitals.

2nd Regiment Native Infantry.

Head Quarters and Right Wing Station—Berhampore.

Arrived from Waltair 9th January 1873.

Left Wing Station—Sumbulpore.

Arrived 5th February 1873.

Average strength	712
Do. present	689
Admissions	660
Daily sick	20
Deaths in hospital...	2
Do. out of hospital	...
Pensioned	1
Sick leave	2

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Waltair	66·38	2·42	1·42	1·70	...
1871	Do.	69·56	3·64	1·21	...	1·48
1872	Do.	165·89	4·20	·87	3·04	1·16
Average	.....	100·61	3·42	1·83	1·58	·88
1873	Berhampore	95·79	2·90	·28	·14	·28

The following medical officers were in charge during the year:—

Surgeon Hazlett.
Surgeon-Major Beach.

The last-named reports as follows:—

Climate. *Climate.*—The climate of the year has not presented any very unusual variations. The total rainfall, some 30 inches, though not below the average of the two former years, is below that of a good year. The first three months of the year were cool and agreeable with after-showers. Towards the middle of April the hot weather commenced with strong southerly winds. The heat continued excessive up to the end of June, when the south-west monsoon set in. The extremes of temperature ranged from 105° in the shade on the 1st June to 61° on the 30th December. The above considerations have not had any unfavorable influence on health and disease.

Marches. *Marches.*—This wing (the right) with the head-quarters marched from Waltair on the 23rd December 1872, and arrived here on the 9th January 1873. No remarks called for.

Sepoys' huts. *Sepoys' huts.*—The individual huts of the lines in which the troops and their families reside are, as a rule, fairly drained and ventilated. The surface drainage is susceptible of improvement; this has been suggested, and will shortly be carried out, as also the house sewage.

Nuisance. *Nuisance.*—In the early part of the year the medical officer of the regiment reported on the insanitary condition of a plot of waste ground to the north of the lines, and the nuisance was removed; also see reply to question No. 5 above.

Hospital water-supply. *Hospital water-supply.*—The water-supply has been sufficient and of average quality, obtained from several wells and tanks in the vicinity of the lines. In the absence of any record of analysis, I am not prepared to say how far the infiltration of the subsoil with sewage may have influenced its purity.

Sanitary arrangements. *Sanitary arrangements.*—The sanitation of the lines has generally been satisfactory, and, as far as I know, there are no local causes of disease requiring removal if we except the causes of venereal infection.

Diet. *Diet.*—Provisions have been plentiful, and the market rates ruled moderate. Vegetables, both European and Native, are abundant during the cold season. Native vegetables are less plentiful during the hot season and commencement of the rains.

The troops have received compensation.

Clothing. *Clothing.*—The clothing of the men has been sufficient and adapted to the climate.

No changes have been recommended.

Foot-soreness. *Foot-soreness.*—There has been a considerable amount of foot-soreness, though not perhaps above the average, due mainly to wearing boots without socks. The boots are hard, roughly made, and not often a perfect fit; small particles of sand and gravel get in, and, with the natural friction, are a source of irritation, which soon raises a blister.

Duty and exercises. *Duty and exercises.*—The duty of the men has consisted in the usual exercises, drills, route-marches, and guards pertaining to a native corps, and, though quite up to regulation, have not been excessive, or exercised any prejudicial influence on the general health.

Number of nights in bed 4½.

Drill. *Drill.*—The men, or portions of them, were drilled morning and evening; the evening drill was omitted during the hot weather. The morning drills commence before sunrise, lasting about 1½ hour; the evening drills not so long. These duties have had no unfavorable influence on health, nor have any recommendations been made.

Lock-up rooms and prison cells.—The prison cells are small, but no sanitary defects have been reported on, as positively injurious to the prisoners confined therein. Lock-up rooms and prison cells.

Vaccination.—The state of vaccination in the corps or wing contrast favorably with former years. No case of small-pox has occurred. The recruits were vaccinated, 6 successfully. Amongst the families 55 children were vaccinated, 30 successfully. Vaccination.

Diseases.—During the year under report no disease has been epidemic. The more prevalent diseases have been miasmatic fevers to the extent of two-thirds of the admissions. Next in frequency follow rheumatism, diseases of the stomach and bowels, boils, diseases and injuries of the skin. Neither the presence nor frequency of these diseases is attributed to any neglect of sanitation, either as regards the men or in or about the immediate neighborhood of the military cantonment. The large per-centage of diseases of the zymotic class is probably due to the broad expanse of wet cultivation over which the prevailing wind blows, during the cold months, towards the lines. No recommendations have been made. Diseases.

Only one case of phthisis is recorded: it ran its usual rapid course in this country, and proved fatal on the 44th day after admission into hospital. The other cases of chest disease are attributable to cold or sudden changes in the temperature, and accidental exposure to bad weather.

Hospital ventilation.—The ventilation of the hospital is very satisfactory, both thorough, by opposite windows and doors and also by the ridge. No representations have been made. No overcrowding. Abundance of room. Hospital ventilation.

Drainage and latrines.—The drainage is surface and natural. The dry-earth system of conservancy is carried out as far as practicable. In the beginning of the year it was represented that the arrangements for the removal of the night-soil were insufficient, and the suggested improvements were made. Drainage and latrines.

Hospital water-supply.—The water-supply is brought to the hospital by the regimental puckallies; its source of supply and purity questionable. It has not been complained of. Hospital water-supply.

Epidemic diseases.—No epidemic disease has broken out or spread in hospital. Epidemic Diseases.

General conclusions.—The head-quarters and right wing have but just completed a year of service at this station; hence no contrasts or conclusions can be drawn from past local records. The health of many of the men had been impaired by previous attacks of dengue, and many admissions, more caused by the malarious fevers endemic in this district; otherwise, the measure of health enjoyed has been a fair average. General conclusions.

Only two deaths have happened—one from phthisis, the other during convalescence from dysentery. A glance at the following table shows the contrasts of disease and mortality between the year under report and the preceding, when the full regiment was stationed at Vizagapatam:—

——	1872.	1873.	Remarks.
Average strength	687	356	The figures for 1872 represent the returns of the full regiment stationed at Vizagapatam. Those of 1873 of the head-quarters and right wing only stationed at Berhampore.
Total sick	1,143	302	
Total deaths	7	2	
Daily average sick	29·75	8·19	
Sick to strength per cent.	4·3	2·3	
Death to strength per cent.	1·02	0·6	

Left Wing, 2nd Regiment Native Infantry.

Station—Sumbulpore.

Arrived 5th February from Waltair.

Average strength present 323

Climate.—The hot weather commenced last year about the beginning of March, and, though not unusual, was somewhat prolonged. The rain was a little late in setting in, and when it came there was a slight deficiency in quantity. Probably owing to this year's short rainfall, malarial fever, which is endemic at this station, did not assume a bad type. Climate.

Marches.—The wing left Vizagapatam on the 17th December 1872, and arrived at this station on the 5th February 1873. Considering that the men suffered from dengue shortly before leaving Vizagapatam, they arrived here in very fair health. On the road up here they had very little sickness among them. Marches.

Sepoys' huts. *Sepoys' huts.*—The lines for the sepoys are situated on slightly-rising ground about quarter of a mile away from town. The site has proved healthy.

The sepoys' lines consist of five long blocks of buildings with wide roads between each. The houses are sufficiently ventilated and their general construction are such as to be conducive to the health of the men.

Ventilation and drainage of the lines satisfactory. Ventilation of the guard-room good, but during the rains the walls of the guard-room become damp. This has been twice reported on, and as yet nothing has been done by the Department of Public Works to prevent the walls from getting damp again during the rain.

Nuisance. *Nuisance.*—The drains in the lines discharge their contents into open ground at the foot of the lines, thus contaminating that portion of the ground. At my suggestion the drains were continued on a little further, and small covered reservoirs built for holding the sewerage, which is now removed daily or oftener, as occasion requires, by toties.

Water-supply. *Water-supply.*—The source of water-supply for the wing has been wells, and, like most stations in India, dependent on wells for their water-supply, there was a deficiency here during the hot weather; some of the men then resorted to the river, a distance of half a mile from the Lines, for water. During the hot weather, when the supply in the wells ran low, the water then became contaminated with earthy impurities; at other times the water in the wells has been good and drinkable.

Sanitary arrangements. *Sanitary arrangements.*—On the whole the sanitary arrangements in the Lines have been properly attended to; there are no local causes of disease in military Lines that require removal.

The military lines are not extensive enough. Close to the regimental bazaar, which is contiguous to the lines and separated only by a narrow road, is the village of Dongripara, with a population of about 800 for the sanitary state of which no provision is made, and it is often in a filthy state, and has been brought to notice by me. In a recent communication on the subject I was informed that no steps could be taken by the authorities at Madras, because the village was in the Bengal territory.

Diet. *Diet.*—The rains having failed, the price of provisions had somewhat risen towards the end of the year, but not to a very great extent. During the hot weather even country vegetables are somewhat scarce, but at other times there are plenty of vegetables to be obtained. The detachment has not received compensation on account of dearness of provisions.

Clothing. *Clothing.*—Military clothing of the men sufficient and adapted to the climate. The civil dress of the men, however, I believe, is not sufficient to keep off the cold during the cold weather at this station.

Foot-soreness. *Foot-soreness.*—There have been very few admissions into hospital from foot-soreness caused by defective boots. The principal cause of shoe-bites among the sepoys has been from their not putting on socks when they wear boots. Men with the shoe-bites were not detained in hospital, but simply excused from wearing boots for a day or two, and they were all right again.

Duty and exercises. *Duty and exercises.*—The detachment had the usual parades, which were about five per week, and guard-mounting. The duties of the wing had no ill effect on its health. Average number of nights in bed, five.

Drill. *Drill.*—The detachment had about an hour's drill per day for about five days in each week on an average. The drills during the hot weather were from 5½ to 6½ A.M., and during the cold weather a little later, from 6 to 7. The drill has had no bad effect on the health of the men.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—Sanitary condition of the lock-up room good; cubic space, ventilation, warming, and cleanliness satisfactory; prison cells likewise satisfactory, with the exception that during the rains the cell walls become damp.

Vaccination. *Vaccination.*—Vaccination has been carried on satisfactorily in the wing. No small-pox has occurred in the detachment during the past year. I have had no occasion to re-vaccinate any of the detachment.

Diseases. *Diseases.*—The principal disease that the men suffered from during the past year has been malarious fever. This disease is endemic at this station, and out of an average strength of 333, 144 admissions were under this head. The type of the disease was not very severe last year, for out of 144 cases only one was remittent fever and 143 the ordinary quotidian intermittent. Probably the cases of the fever being so mild last year was due to a somewhat scanty rainfall during the year, also the men having only this year arrived at this station were better able to withstand the effects of the climate.

The case of phthisis pulmonalis shown in my return is, I believe, attributable to hereditary taint.

Ventilation of hospital. *Ventilation of hospital.*—The ventilation of the hospital has been very satisfactory. I have no occasion to make any representation on the point. No overcrowding of the hospital during the past year.

Drainage and latrines. *Drainage and latrines.*—The hospital, being situated on high ground, has natural fall for drainage. In the latrine, the dry-earth system has been effectively carried out. I have made no representation regarding any defects in the drainage or latrine of the hospital during the past year.

Hospital water-supply.—Puckallies supply the hospital with water. I have had no occasion to complain about the quantity or quality of the water supplied to the hospital. Hospital water-supply.

Epidemic diseases.—No epidemic disease of any description prevailed in the detachment during the year. Epidemic diseases.

General conclusions.—On the whole the general sanitary condition of the lines has been satisfactory, the accommodation in hospital ample, and the building clean and well ventilated. The guard-room and cells have not been overcrowded. General conclusions.

The water-supply during the greater part of the year was sufficient in quantity and of good quality. During the hot weather, however, there was some scarcity for water; this I am afraid will always be the case here during the hot weather owing to the rocky nature of the soil in which the wells are sunk. Abundance of good water, however, can always be obtained from the river which is about half a mile away from the lines.

No epidemic disease prevailed in the detachment during the year.

Deputy Surgeon-General Tribe, Nagpore Division, inspected this wing on the 24th November 1873, and reports as follows:—

Barracks.—The lines are clean, well ventilated, and well drained both naturally and by stone V drains which will require perpetual repair as they have been made by the sepoys and without chunam. The huts themselves being built strictly in accordance with regulation, ventilation is of course impossible. There have been during 10½ months 21 deaths among 789 followers, or rather more than 2½ per cent. Barracks.

Sanitary condition of all buildings.—All are in a good sanitary state, there being no foul drains or cesspools and all excreta being removed to a distance. Sanitary condition of all buildings.

Conservancy.—All within military limits is scrupulously clean, but outside these limits the stench is in some places surprising. There are, however, no accumulations of filth, and it does not appear that fæcal deposits scattered over the surface of the ground, however offensive, are often injurious to health. There is a small village near the regimental bazaar about which some reference has been made, but there are difficulties in the way of any reform, and the position of the military authorities is an apt illustration of the proverb that "he who sits between two stools falls to the ground," for I am told that the state of affairs was brought to the notice of the Revenue Board who said that, Sumbulpore being out of the Madras Presidency, the Madras Government could do nothing, while the local authorities appear to be unable to do anything. Conservancy.

7th Regiment Native Infantry.

Station—Vizagapatam.

Arrived from Madras 27th February 1873.

Average strength	703
Do. present	657
Admissions	514
Daily sick	31
Deaths in hospital	4
Deaths out of hospital	2
Pensioned	20
Sick leave	40

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Singapore...	121·71	3·12	2·81	·46	2·03
1871 ...	Madras	126·73	6·30	2·33	·31	13·3
1872 ...	Do.	131·43	4·79	1·11	6·15	5·59
Average ...	.....	126·62	4·73	2·08	2·30	6·97
1873 ...	Vizagapatam	78·23	4·71	·85	2·84	5·68

Surgeon S. B. Hunt, in medical charge during the year, reports as follows:—

Climate. *Climate.*—The climate of the station was agreeable throughout the year except in the month of June, when it was very hot and sultry, exceptionally so according to the statements of old residents. The total amount of rainfall was unusually heavy, the monthly rainfall being greatest in August and October. The climate exerted a beneficial influence on health and disease though not in all cases, ague, beri-beri, and anœmia being exceptions. These diseases appear to be endemic here. Average rainfall for the year 52·58 inches.

Marches. *Marches.*—The left wing embarked at Madras on 11th February and arrived at Vizagapatam on the 14th; the right wing and head-quarters embarked on the 24th of the same month and landed at Vizagapatam on the 27th. The men enjoyed good health on the passage.

Sepoys' huts. *Sepoys' huts.*—There are no barrack-rooms. The means of ventilation and drainage for the guard-rooms are sufficient to preserve the air pure. The huts of the sepoys are only ventilated through their doors, which cannot, I think, be sufficient, although the men do not complain.

There are no drains in the regimental lines, and consequently rain lodges in front of some of the huts in wet weather. I represented this to the Commanding Officer, but he was not able to have a proper system of drainage constructed, as it appears that the present state of affairs has continued for years without alteration or amendment.

Nuisance. *Nuisance.*—There has not been any nuisance during the year from latrines, urinals, cesspits, &c. All nightsoil is removed to a distance on the seashore, and the conservancy of the station is properly attended to by the Municipality.

Water-supply. *Water-supply.*—There are three wells in the lines containing brackish water which is only used for cooking and washing. The men obtain sweet water in sufficient quantity from two wells in the vicinity of the lines. The water-supply for the general population is good and abundant.

Diet. *Diet.*—Provisions have been cheap and plentiful. Vegetables were abundant at the station. The troops have received rice-money every month.

Clothing. *Clothing.*—The clothing has been sufficient and adapted to the climate. No recommendations were made.

Foot-soreness. *Foot-soreness.*—There have been very few cases of foot-soreness, and they have almost all got well in a few days by being excused from wearing their boots on my recommendation.

Duty and exercises. *Duty and exercises.*—The duty has consisted of the usual parades and guards. It has not been excessive in amount, nor prejudicial to the health of the men. Average number of nights in bed 4·42.

Drill. *Drill.*—There are on an average five morning and five evening drills in the week, morning from 5·30 to 7 o'clock and evening from 5 to 6 o'clock. Running drill was commenced in December and practised on alternate mornings.

Lock rooms and prison cells. *Lock rooms and prison cells.*—The sanitary condition of the cells is good, but in my opinion the means of ventilation are barely sufficient. I brought this to the notice of the Commanding Officer, but it appears that no alteration can be effected, and prisoners do not make any complaint on this point. On my recommendation the cells have recently been white-washed and the lower portion covered with coal-tar.

Vaccination. *Vaccination.*—Vaccination has been kept up in the corps. No cases or deaths from small-pox have occurred among men properly vaccinated. Thirty-five men were re-vaccinated during the year; of these twenty-six were successful, in four a modified vesicle was obtained, and in five no result was produced. The total number vaccinated during the year was ninety-six.

Diseases. *Diseases.*—There has been no epidemic during the year. The principal diseases have been skin diseases, fevers, beri-beri, rheumatism, and dysentery. Some of the cases of skin disease were obstinate, but the other diseases were generally of a mild type. In some cases the men had to be sent on leave for change of air to complete their recovery.

I attribute the occurrence of phthisis pulmonalis to wet and cold in the cases of men predisposed from delicacy of constitution.

Hospital ventilation. *Hospital ventilation.*—The ventilation in the present hospital is sufficient. The hospital consists of two wards running from north to south. The north ward is 22½ yards long and 6½ yards broad; the south ward 26½ yards long and 6½ yards broad. The former has three doors and three windows on each side; the latter four and three. A door communicates between the two wards, and there is also a door at each end, and roof ventilation the whole length of the building. No representations required.

There is no overcrowding in the present hospital; there would sometimes have been to a slight extent in the old one, but this was obviated by sending convalescent cases for a few days to the lines whenever this step was necessary.

Drainage and Latrines. *Drainage and Latrines.*—Good. Earth sewage has been efficiently carried out. No representations required.

Hospital water-supply.—The water is brought by a puckally from the wells near the lines, and the supply is, therefore, limited. I recommended that a well should be sunk in the hospital compound, but no steps have been taken, as it is believed that only brackish water could be obtained. Hospital water-supply.

Epidemic disease.—None. Epidemic disease.

General conclusions.—The number of cases admitted during the past year was less by 364 than the number admitted in the year 1872. This great difference is accounted for by the prevalence of dengue in the year 1872, for which disease there were 389 admissions. The greatest number of admissions in the past year were from skin diseases (129) and ague (81). Four deaths occurred in hospital: one from acute beri-beri, one from anæmia, one from phthisis pulmonalis, and one from idiopathic tetanus. General conclusions.

Many of the men admitted were weak and anæmic, and took a long time to regain their health in consequence. The men are gradually becoming stronger, although it has taken a long time to shake off the effects of the Straits' climate and the practice of selling their rations, which used to prevail amongst the men on foreign service. On these matters I have already commented in former reports.

12th Regiment Native Infantry.

Station—Vizianagrum.

Arrived from Tonghoo 28th January 1872.

Average strength	710
Do. present	654
Admissions	1,078
Daily sick	42
Deaths in hospital	5
Do. out of hospital	2
Pensioned	9
Sick leave	17

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Tonghoo	97·33	5·79	2·34	·46	3·75
1871	Do.	80·51	3·67	1·19	...	5·65
1872	Vizianagrum	103·66	5·42	2·06	·27	2·89
Average	.....	93·83	4·96	1·86	·24	4·09
1873	Vizianagrum	164·83	6·42	·98	1·26	2·39

Surgeon-Major Ridings, M.D., in medical charge during the year, reports as follows:—

Climate.—The climate during the year 1873 has been abnormal in some respects, heavy showers having occasionally fallen in April and May, while the rainy season did not set in until the 30th June instead of about the 10th or 12th as is usual; consequently there was no excessively hot weather until June, which, however, was an unprecedentedly oppressive month. The rains lasted longer than usual, up to the end of October, and were in excess. Climate.

Marches.—None. Marches.

Sepoy lines.—The regimental lines are distant about half a mile from the town, and are situated on open, slightly-elevated ground with a gentle slope sufficient to ensure effective drainage. Sepoy lines.

The huts are of the usual description occupied by native troops, and, therefore, certainly not conducive to health.

As regards drainage of the regimental lines, a very great improvement has been effected by the laying down of slabs of granite so as to form a V-shaped water-course on each side

of each street. The system has not yet been completed, but is far advanced and in active progress. It prevents percolation of the surface drainage into the subsoil, which was a great evil under the system of no water-courses.

Nuisances. *Nuisances.*—None.

Water-supply. *Water-supply.*—The supply has been ample from numerous deep wells, but it is rather saline in flavor. The Analyst of Potable Waters, Dr. Nicholson, R.A., has reported it to be wholesome and free from organic matter.

Diet. *Diet.*—Provisions have been cheap as compared with the rest of the Presidency. Vegetables have been abundant. Rice compensation has been issued monthly.

Clothing. *Clothing.*—Warm clothing was recommended to be worn in November.

Foot-soreness. *Foot-soreness.*—In but a very few cases the men were excused wearing boots on this account.

Duty and exercises. *Duty and exercises.*—Ordinary garrison and regimental duty, not injuriously affecting health, as it was made as light as possible, while the sick list was heavy from dengue fever or other affections. Average number of nights in bed, $6\frac{3}{4}$.

Drill. *Drill.*—During the first nine months of the year the amount of drill was very light; battalion drill twice weekly. For the past three months, in preparation for the annual review, it has of necessity been somewhat heavier, but never excessive. The companies have gone out in succession to ball-practice about $2\frac{1}{2}$ miles from the lines, each company taking eight days to go through its course of practice-training, leaving barracks at 5 o'clock A.M. and getting back about 10 A.M. While going through the course the company is excused all other duty. No recommendations were necessary, as no unfavorable results appeared.

Exercises. *Exercises.*—Gardens have been originated by the wing officers, which may be pronounced a success as affording a good supply of vegetables, as well as occupation and amusement, to the men.

Lock-up and guard rooms. *Lock-up and guard rooms.*—Sanitary condition good.

Vaccination. *Vaccination.*—The whole regiment was revaccinated the previous year 1872. During the past year 1873 there were vaccinated 174 amongst the women and children, of which 107 proved successful and 67 the reverse. No cases of small-pox occurred in the regiment.

Diseases. *Diseases.*—Cases of ordinary intermittent fever have been common. Dysentery and diarrhœa have been rare. There has been no cholera in the regiment during the year, and but one case of small-pox (not a sepoy).

Dengue fever. *Dengue fever.*—In February dengue fever made its first appearance, the station having been quite free from it the previous year, when it prevailed extensively all over India and Burmah.

But three cases out of the 369 admissions were of a serious nature, head symptoms having set in, and but two cases were maculated. Convalescence, however, was tedious in numerous instances, and in three cases the sufferers did not regain the use of the lower limbs for many months. The disease attained its maximum of severity in February and gradually died away in succeeding months of March, April, May, June, and July; there were no admissions in either August or September, but on the setting in of the cold weather, it again made its appearance during October and November. Diseases have generally been of an asthenic type in many instances, requiring the moderate exhibition of stimulants and diet.

There has been no overcrowding, defective ventilation, or defects in drainage, latrines, water-supply, &c.

Phthisis pulmonalis. *Phthisis pulmonalis.*—The chest affections were mostly bronchitic, and were probably attributable to wet clothing in the rainy season and chills in the cold season.

Hospital ventilation. *Hospital ventilation.*—Good. Wards not overcrowded, slight and convalescent cases being permitted to go "Line Sick" when the number of sick exceeded the number of beds.

Drainage and latrines. *Drainage and latrines.*—Clean and in good order. The dry-earth system has been efficiently carried out.

Hospital water-supply. *Hospital water-supply.*—Good and sufficient.

General conclusions. *General conclusions.*—The regiment was recovering its tone, which had been much lowered by its late tour of foreign service in Burmah, when dengue fever set in in February and sent half the men to hospital in a couple of months, besides becoming most marked in after ill-effects on their constitutions, generally rendering them peculiarly liable to attacks of ordinary intermittent fever.

Itch has been very prevalent chiefly amongst the young soldiers, even though every effort was made by weekly inspections to bring the cases promptly under treatment.

It has been found necessary to grant sick leave to their native villages to 17 men and to invalid 9.

The regiment is now, however, becoming more healthy, and will probably show a marked decrease of sickness during the ensuing year if no epidemic occurs.

41st Regiment Native Infantry.

Station—Cuttack.

Right Wing arrived from Madras on the 20th October 1868 and Head Quarters and Left Wing on 25th January 1869.

Average strength	697
Do. present	658
Admissions	270
Daily sick	18
Deaths in hospital	1
Do. out of hospital	4
Pensioned	24
Sick leave	8

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Cuttack	36·15	1·87	·86	1·57	...
1871 ...	Do.	44·84	2·42	·75	2·26	1·35
1872 ...	Do.	113·17	3·51	1·29	4·02	1·15
Average ...	.....	64·72	2·60	·96	2·61	·90
1873 ...	Cuttack	41·03	2·73	·71	3·44	1·14

The following medical officers have been in charge during the year :—

Surgeon-Major Cayley, Bengal Army.
Surgeon J. F. Fitzpatrick.

The last-named reports as follows :—

Climate.—The climate of Cuttack during the past year was agreeable in comparison with the previous one. The hot weather was very slight indeed, the temperature at no time rising to anything like what it was in 1872. The monsoon broke late in June and ended in October, the total rainfall being only about half of that of the previous year. There has been no prevailing disease except during the month of November, when intermittent fever caused 36 admissions. Climate.

Marches.—None. Marches.

Sepoys' huts and barracks.—The guard-rooms are well ventilated. In last year's report I described the very insanitary condition of the regimental lines as regards the drainage, and since then nothing has been done to lessen the nuisance. Sepoys' huts and barracks.

The huts are also in a very bad state, and, coupled as they are with no attempt at drainage, it is simply a wonder why epidemics are not constantly prevailing. Should the germs of disease find their way into the lines in their present filthy state, everything will favor their rapid propagation.

Nuisances, &c.—The drainage of the lines is a constant nuisance. I have endeavored in every way to have something done to mitigate the evil. From communications I have seen which have passed between the Superintending Engineer, Public Works Department, and the Quartermaster-General, Madras Army, I am afraid that it is unlikely that any practical steps will be taken in the matter at present. Nuisances, &c.

Water-supply.—The water-supply has been good and quite sufficient for all purposes. Water-supply.

Sanitary arrangements.—Under existing circumstances very little attempt at sanitation can be made so far as the regimental lines are concerned; they have, however, been kept as clean as possible. Sanitary arrangements.

Diet.—Provisions were cheap and plentiful except during the latter part of the year, when a scarcity was experienced. Compensation for dearness of rice was issued during February, November, and December. Diet.

Clothing.

Clothing.—Clothing is quite sufficient and adapted to change of season.

The topee of the corps I consider quite insufficient, as it does not afford any protection against the sun's rays.

Foot soreness.

Foot-soreness.—Foot-soreness is constantly occurring and incapacitates many of the men; to prevent those so affected being detained in hospital, I got permission from the officer commanding to grant "boot leave" for so many days as the cases required. I have examined the boots, and in general they are very badly made, and I am only surprised that foot-soreness is not more prevalent.

Duty and exercise.

Duty and exercise.—It is such as is generally performed by native troops in time of peace. They do not exercise any injurious effect on health. Average number of weeks per night in bed, 6.

Drill.

Drill.—In the hot weather drills take place from 5-30 to 6-30 A.M. and from 5-30 to 6-30 P.M. In the cold season from 6 to 7 o'clock A.M., and sometimes later in the evening from 4-30 to 5-30 P.M. I have not noticed any injurious effects resulting.

Drills were discontinued for a short time when the weather was rather hot.

Exercises.

Exercises.—There is a gymkhana for the recruits and recruit boys, and the exercises practised are decidedly beneficial. Some of the men play at cricket, and many engage in the annual games got up for their amusement. A soldiers' garden also affords a healthful recreation.

Lock-up rooms, &c.

Lock-up rooms and prison cells.—Quite satisfactory.

Vaccination.

Vaccination has been kept up during the year in the cold season. At the end of 1872 there were unprotected, either by vaccination or small-pox, 58 men, 13 recruits, and 10 recruit and 5 pension boys.

There are now remaining only 18 men in the corps left unprotected, and these would have been operated on had it not been that they were required to appear for the annual inspection. I hope to have them protected before the end of the present cold weather. None have been yet revaccinated.

Diseases.

Diseases.—No epidemic during the year. There were 18 admissions from fever in November, which were in all probability due to change of temperature, as the nights at the time grew rapidly cold. The type of the disease was that of bilious intermittent; symptoms of hepatic derangement were the forerunners, shown by headache, vertigo, bilious vomiting, and confined bowels. These when rectified by emetics and purgatives, the disease assumed a quotidian intermittent character, which in some cases yielded rapidly to quinine; others were more or less amenable to the effects of arsenic.

Phthisis pulmonalis.

Phthisis pulmonalis caused five admissions, all other chest affections 40. I assign hereditary transmission, debility from frequent attacks of malaria and syphilis as the causes of the former, and changed temperature, with exposure, the latter.

Hospital ventilation.

Hospital ventilation.—Very good. There has been no overcrowding.

Hospital Drainage, &c.

Hospital drainage and latrines have been very good. Dry-earth system adopted.

Hospital Water-supply.

Hospital water-supply.—Good and sufficient.

Epidemics in Hospital.

Epidemics in hospital.—None.

General conclusions.

General conclusions.—The corps has enjoyed very good health during the year. Though 270 cases have been treated in hospital, which is an increase of 60 when compared with last year (excluding admissions due to dengue), very few serious cases of illness came under observation. Six casualties occurred—two in hospital and four while on sick leave and furlough. The causes of death were respectively due to (those in hospital) fracture of pelvis, meningitis. On sick leave one phthisis, one dysentery, and one general debility.

One man died on furlough at Vellore: cause of death not known. Nothing has been done to improve the drainage of the regimental lines, which could not possibly be in a more defective state.

SOUTHERN DISTRICT.

Average strength	3,414
Do. present	3,216
Total admissions	2,926
Daily sick	71
Deaths in hospital	12
Do. out of hospital	10
Pensioned	32
Sick leave	74

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous periods :—

Year.	Rate per Cent. of				
	Average Strength present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	34·59	1·53	·82	2·35	...
1871	42·33	1·59	1·01	2·62	·71
1872	111·54	2·35	·85	1·86	1·67
Average	62·82	1·82	·89	2·28	·79
1873	90·98	2·20	·64	·93	2·16

The following corps were serving in the division on the 1st July 1873 as shown by the Army List :—

19th Regiment Native Infantry.
24th do. do.
26th do. do.
32nd do. do.
38th do. do.

Deputy Surgeon-General Johnston, M.D., was in charge of this circle, and submits the following brief report :—

General health of Europeans.—During the year under review the health of the Europeans, inclusive of the commissioned, warrant, and non-commissioned officers of the several departments, has been, on the whole, satisfactory. General health of Europeans.

Seasonal Phenomena.—The climate of the head-quarter station has differed very considerably from the general average of years, the monsoon rains having fallen under the average, 35 inches, the result being a partial failure of the crops, wet and dry. Seasonal phenomena.

Health of Native Troops.—The health of the Native troops has been, on the whole, good, save that dengue, which had been epidemic during 1872, continued so for the first half of the succeeding year. The admissions from this cause were as follow: 19th Regiment Native Infantry 56, 32nd Regiment Native Infantry 572, with one detail. The epidemic was general, and the civil population suffered very considerably. A strict quarantine resulted in the complete immunity of the prison population of both Central and District Jails. Health of Native troops.

Epidemic.—The year has been characterized by complete immunity from Cholera Asiatica. Epidemic.

Comparison with previous years.—A comparison with the previous year shows that, were the admissions from dengue excluded, the total entries into hospital fall short by 66 and the death-rate 14 less. Comparison with previous years.

19th Regiment Madras Native Infantry.

Station—Trichinopoly.

Arrived from Singapore 7th May 1872.

Average strength	687
Do. present	659
Admissions	675
Daily sick	18
Deaths in hospital	1
Do. out of hospital	...
Pensioned	8
Sick leave	16

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Kurnool...	63·11	1·31	·72	2·04	...
1871 ...	Singapore	14·01	2·11	1·12	..	3·53
1872 ...	Trichinopoly	186·64	4·82	·92	...	4·63
Average ...	.....	87·92	2·74	·92	·68	2·72
1873 ...	Trichinopoly	102·42	2·73	·14	1·16	2·32

The following officers have been in medical charge during the year :—

Surgeon-Major J. A. Cox, M.D.
Do. S. Williams, M.D.
Surgeon S. L. Dobie.

The last-named submits the annual report.

Climate. *Climate.*—The medical officer, in sending in this report, states that, having joined the regiment late in November, it is impossible to make any remarks on the climate of the station, except on that for little more than a month at the end of the year. During this time the climate was dry and healthy; the mornings, evenings, and nights cool; the days never very hot. The cold nights had the effect of sending an increase of fever cases to hospital.

Marches. *Marches.*—None.

Sepoys' huts. *Sepoys' huts.*—The lines face north and south; they are about level with the adjacent ground. On one side the lines of the 30th Regiment Native Infantry adjoin; on the other are paddy fields rather closer than could be wished; behind is an open drain, which is harmless if kept clean; in front is the parade-ground together with a large extent of open ground. The huts are temporary huts, and are rather smaller than they should be.

Guard-rooms. *Guard-rooms.*—The guard-rooms and cells are all well ventilated and kept clean.

Nuisance. *Nuisance.*—An open drain running at the back of the lines caused a nuisance through not being kept clean; steps were taken to have it kept in proper order, and the nuisance disappeared.

Water-supply. *Water-supply.*—There are seven wells, the best of which is near the latrine; in the latter well the water is pure; in the others it contains much saline matter, and is very bad.

Clothing. *Clothing.*—The clothing has been adapted to the changes of the seasons, and has been suitable.

Foot-soreness. *Foot-soreness.*—There has been, comparatively speaking, no foot-soreness.

Duty and exercises. *Duty and exercises.*—There have been three Native Infantry Regiments stationed here, therefore the duties have been light.

Average number of nights in bed—Havildars 10¼; Naigues 4¼; Privates 6.

Drill. *Drill.*—During the drill season the regiment has had an hour's drill morning and evening four times a week between the hours of 5-45 and 6-45 in the morning and 5 and 6 o'clock in the evening.

The influence of drills on the health of the men has been a beneficial one, as might be expected under ordinary circumstances.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of cells, &c., has been satisfactory as regards cubic space, &c.

Vaccination. *Vaccination.*—Vaccination has been kept up in the regiment.

One case of small-pox occurred; the man recovered.

Diseases. *Diseases.*—Under the head intermittent fever there were 186 cases. Vaccinia contributed the next greatest number of cases, viz., 127. Under the head dengue there were 56 cases. The dengue died out of the regiment in the early part of the year, but its ill-effects and sequelæ have showed themselves even up till now. Of noticeable diseases, syphilis contributed 13 cases, rheumatism 26, locomotor ataxia 3, chest affections 21, dysentery 19, diarrhœa 10.

There have been two deaths in the regiment—one the case of a Jemadar, the other a private—the cause of death in each case being chronic diarrhœa.

The constitutional cases in the case of phthisis pulmonalis were probably aggravated by such exciting causes as exposure, hard work, and the like.

Hospital ventilation.—The ventilation of the hospital is by windows and two doors. There is also ridge ventilation. Hospital ventilation.

The windows, of which there are six on one side and four on the other, are too small, and it would be better if two additional ones were pierced in the side containing only four.

Drainage and latrines.—The drainage and latrines have been in very good order. The dry-earth system is used in the latter, and has been efficiently carried out. Drainage and latrines.

Hospital water-supply.—The water is good, and a fine well is in the hospital compound. Hospital water-supply.

Epidemic disease.—An epidemic of dengue prevailed as aforementioned. The number treated was 57 (including European officers). No cause beyond that of infection can be given for its appearance among the troops. Epidemic disease.

General conclusions.—Nothing noteworthy having occurred in the month and-a-half during which the medical officer making this report was with the regiment, there are no remarks of any interest to make, nor, from the short time he was with the regiment, can he come to any general conclusions. General conclusions.

Deputy Surgeon-General Johnston inspected this corps on the 2nd of March 1874, and reports as follows :—

Barracks.—That portion of the lines, common to the two Native Infantry Regiments garrisoning this station in which the sepoys' huts are ranged is, for this corps, to the east of that in which are those of the 38th Regiment Native Infantry. Seven parallel ranges of mud-walled, tile-roofed structures are here placed, each divided in the centre by a longitudinal mud-wall from floor to roof ridge, and running from one gable end to the other, meeting and intersecting other inner walls at regular intervals and at right angles, thus subdividing each range into a greater or lesser number of compartments $10 \times 10 \times 10 = 100$ superficial feet and of 1,000 cubic capacity. Quoting from the Inspection Report of this regiment, submitted on the 4th March last, in respect of means of drainage, it is recorded that "the streets separating those seven ranges of huts are broad and have on either side, close to the mud-walls which enclose each range, shallow earth ditches to carry off sewerage and storm water. But, as above stated, so level is the ground surface here that the purpose of these drains is almost completely frustrated, liquid accumulations emitting the usual sewerage fœtor being seen by me at almost every turn during the inspection of these lines, and this dispite the assiduous attention evidently bestowed on the conservancy of the lines by the regimental authorities. Barracks.

This is a very serious evil, and, unless remedied, will inevitably initiate disease amongst the inmates of these lines.

Sanitary condition of all buildings.—The guard-rooms and place-of-arms are in juxtaposition with those of the 38th Regiment Native Infantry. The cells, two in number, are not far removed from the hospital which they front. All these buildings were found to be in very fair condition. Two latrines of the same objectionable construction as that described as attaching to those of the 38th Regiment Native Infantry have been erected to the east of the lines—one for the use of the sepoys, the other for the women of the corps. Sanitary condition of all buildings.

Conservancy.—It is very necessary that attention should be drawn to the extremely defective drainage system which obtains in the lines of the two native regiments cantoned in this part of the station, in order that remedial means may be applied and a prolific source of ill-health amongst the sepoys and their families removed. Leaving out of view the inner street earth-worn drains within the area in which the hut-rows are ranged, and which are alluded to in paragraph 1 of this report, my remarks are now confined to the larger drains. The collective liquid sewage of the lines of the 38th Regiment Native Infantry has two outlets, viz., one in the west in connexion with the town system of drains, the other to the east in a wide quadrangular masonry drain extending 371 yards, where it abruptly ends. Conservancy.

This general drain is also in connexion with the street drains of the lines of the 19th Regiment. Further, it receives the sewerage of the bazaar on the northern aspect of the lines of both regiments. But from what cause it is owing—original faulty structure of the drain, or the level nature of the ground surface—its sewerage, in the hot, dry season at least, is, for the most part, arrested at different points till dissipated by the sun's fierce rays, or should the terminus be reached, additions are made to a quagmire, the very worst of its kind. But, as if this were not enough, it is precisely at this point, not in fact a dozen yards from this quagmire, that another evil of equal, if not of greater, magnitude is encountered, and I take blame to myself for not having sooner brought it to light. For it is not alone from this sewer and its quagmire terminus that the horrible stench which far and near, poisons the air, is emitted, but much more from the accumulation of vast quantities of town refuse and surface sweepings brought by scavengers' carts and deposited here, and to which additions are daily made. Now the lines of the 19th Regiment are certainly not more than 120 yards to the south and west of this miasmatous centre, so that the air breathed by the inmates—the sepoys and their families—must be more or less contaminated by septic matter, inducing lowered vitality and physical depression, thus tending to call disease into action. What havoc would not cholera make here were the unknown influences which have happily kept it dormant for more than three years to lessen and disperse? But

an apt illustration of the results of exposure to such influences is to be found in the paroxysmal fever, which may now be said to prevail epidemically in the 19th Regiment, while the illustration is rendered still more forcible by the fact that the 38th Regiment has, up to this time, remained free, doubtless from the fact that the lines of this regiment being more to the west are, therefore at a relatively greater distance from the miasmatous centre.

Hospital. *Hospital.*—In the inspection report of this regiment submitted on the 4th March last the conditions, as called for under this heading, are fully detailed, and to this report reference is requested on the present occasion. Having minutely examined the hospital and its attached buildings on this date, everything afforded satisfactory proofs of a well-arranged interior economy and management on the part of the medical officer in charge.

24th Regiment Native Infantry.

Station—Palamcottah.

Arrived from Secunderabad 7th February 1873.

Average strength	695
Do. present	549
Admissions	666
Daily sick	17
Deaths in hospital	1
Do. out of hospital	2
Pensioned	...
Sick leave	6

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per cent of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Secunderabad	49·47	1·78	1·33	2·52	...
1871 ...	Do.	48·37	1·76	·71	...	·14
1872 ...	Do.	50·78	2·14	1·97	...	·56
Average ...	.....	49·54	1·89	1·33	·84	·23
1873 ...	Palamcottah	121·31	3·09	·43	...	·86

The following medical officers were in charge of this corps during the year:—
Surgeon-Major A. Fergusson, M.D.
Surgeon H. D. Cook, M.B.

The last-named reports as follows:—

Climate. *Climate.*—The climate is nearly all the year round very hot, especially in the months of March, April, and May. In these months the health of the military and civil population is very good. In the cool months, *i.e.*, November, December, and January, the heat of the day alters little, but the nights, mornings, and evenings are always cold, which is not conducive to health, giving rise to much dysentery and diarrhœa in the population. But on the whole this is a healthy station.

Marches. *Marches.*—On the march from 16th December 1872 to 10th February 1873 from Secunderabad; was not in charge then, but the health of the men was good as seen by the books.

Sepoys' huts. *Sepoys' huts.*—The lines for the black troops face north and south; they are old huts, but kept clean and visited frequently by the medical officer. The position is excellent, getting all the sea-breeze from the east.

Rows of huts are according to the standard measurements.

The huts are large enough to preserve the air pure if they contained a reasonable amount of people; but the sepoys often keep in their huts many relations, which does, I fancy, tend to cause impure air in them. The drainage of the lines is fair; of course it would be much better if the drains were lined with stones, instead of mere earth drains, but they are daily swept and kept clean.

Nuisance.—None that I am aware of; the latrines and urinals about the lines are kept clean; the dry-earth system, however, is unfortunately not carried out; the excrements are taken away every day and buried in a pit about 300 yards distant from the lines. Nuisance.

Water-supply.—There are altogether seven wells in the lines occupied by this regiment, but only two out of these are resorted to for drinking and cooking purposes, the others being very hard and only fit for washing. There is abundant water for drinking for the sepoys, and the quality is good. Water-supply.

Sanitary arrangements.—Very well attended to. No local causes of disease. Sanitary arrangements.

Diet.—Provisions in this district are extremely dear and not plentiful, *i.e.*, the vegetables; they have to be brought from some distance, and are sold by public auction in the market weekly. The troops receive Rupees 1-5-0 per mensem compensation for the dearness of the provisions (*i.e.*, rice). Diet.

Clothing.—The men wear scarlet cloth in the cool months and white drill in the hot months, which is adapted to the climate. I have not recommended any changes. Clothing.

Foot-soreness.—Yes, there is a good deal of foot-soreness in the men, which is occasioned by wearing boots, which are not well made, without any stockings. Every morning nearly men have to be excused boots for some days. I have taken no steps to rectify this, except recommending that boots should be excused for a certain number of days to those who suffer. Foot-soreness.

Duty and exercises.—The nature of the duty of the troops is drill and sentry, neither being excessive. Duty and exercises.

Average number of nights per week in bed 7·81.

Drill.—In the cool weather there is drill nearly every day between the hours of 6 and 7 A.M., and in the hot weather about twice a week between the hours of 5-30 and 6-30 A.M. The influence of drill on the health of the men is good and not excessive. Drill.

Lock-up rooms and cells.—The solitary cell is, I think, according to the regulation size.— Lock-up rooms and cells.

Height, 11 feet 9 inches.
Breadth, 8 feet.
Length, 8 feet.
One ventilator on each side, 3 × 1.
Door-way, 6 × 3.

Adjoining privy to each cell—

Height, 8 feet 1 inch.
Breadth and length, 4 feet.
Door-way, 5 feet 1 inch × 2 feet 7 inches.

There is an outlet for cleaning the privy on the ground floor 1 foot 8 inches × 1 foot.
Health of prisoners when confined not injured.

Vaccination.—Vaccination is being energetically carried on at present. Up to November of this year (1873) vaccination was not carried on, and this was owing to (*a*) the march, (*b*) epidemics of dengue, and (*c*) hot weather. The result was that in November there were 112 men and 225 children not vaccinated. Since November I have successfully vaccinated 16 men and 57 children. Re-vaccination was not carried out. Vaccination.

None have died from small-pox.

Diseases.—Dengue prevailed in this regiment from February 15th to May 5th, 1873; in all 478 cases. There were no deaths from this disease; the cases were mild, but it left the men attacked very weakly. Diseases.

This is such a healthy station, and the neighbourhood kept so scrupulously clean by the Municipality, that no diseases *in particular* ever break out. Dysentery, as beforesaid, is prevalent, but this is due to the climate and not to defective ventilation, bad drainage, &c.

There have been very few cases of phthisis in this regiment since I have had charge of it (*i.e.*, since August 23rd, 1873).

Hospital ventilation.—Ventilation of the hospital has been excellent; a better hospital and better ventilation could not be wished for; it was once occupied by white troops. No overcrowding. Hospital ventilation.

Drainage and latrines.—The latrines of the hospital are kept clean and the dry-earth system most effectively carried out, and coal-tar is freely used. The drainage of the hospital is natural. Drainage and latrines.

Hospital water-supply.—The hospital water-supply is got from the well exactly opposite the gate of the hospital; it is abundant and good; has been analysed by Sub-Assistant Surgeon Harvey last year. Men cook for themselves. Hospital water-supply.

General conclusions.

General conclusions.—The only other remark I would like to make is the great prevalence of "syphilitic disease" in the town of Tinnevelly, about three miles distant from Palamcottah, and also in Palamcottah itself. I am aware of this, not so much from my experience as Surgeon to the regiment, but I happened to be Zillah Surgeon of this district for the space of one year (July 1872 to June 1873); and during that time the amount of diseased prostitutes who practised their trade was really distressing; they and their victims used to crawl into the dispensary suffering from the most loathful form of the disease, and it must be borne in mind that it is only when they (the prostitutes) get so impregnated with the disease that they cannot ply their trade, that they seek admittance to hospital for support more than for treatment. I have not met with much syphilis among the sepoys with the exception of one poor fellow, who has got syphilis in its most virulent form.

An establishment of a lock hospital would be the greatest boon to the whole district.

Deputy Surgeon-General Johnston inspected this corps on the 10th of October 1873, and reports as follows:—

Barracks.

Barracks.—The lines of this regiment are to the north-east of the town of Palamcottah on a site somewhat declivitous and free from all obstruction. The sepoys' huts are in double rows running east and west, and on the rear are separated from each other by a narrow lane. A broad unpaved street fronts each row, having, in close proximity to the front compound walls, mere earth-worn drains irregularly excavated by the action of storm-water. Thanks to the surface slope, liquid lodgment cannot take place, but a stone-facing so as to form a V-shaped drain is greatly needed. The huts are the usual mud-walled, tile-roofed structures with an absence of the means of ventilation so absolutely necessary in such contracted, and, it may be added, overcrowded, spaces. The rows of huts, though built in continuous line, have their sub-divisions isolated from each other by mud-walls enclosing narrow spaces. The front space is encroached on by latrine and lavatory. On the present occasion these lines and huts were found scrupulously clean and well looked after. The street drains free from sewerage or refuse water.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The place-of-arms, guard-rooms, and cells were found in excellent condition. There are no cess-pools or foul drains in the vicinity of the lines.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—This is well looked after by the regimental authorities and is most satisfactorily conducted. Once a week the Quartermaster and the Medical Officer inspect these lines so as to enforce and secure thorough cleanliness, not only of the streets, but the domestic latrines with which each hut is furnished.

Hospital.

Hospital.—This hospital is a fine, well-constructed building on a raised basement, and was once the barracks of a detachment of European Artillery. On the present occasion of its inspection its wards were scrupulously clean, and that everything testified to the care and zeal of the Medical Officer.

Deputy Surgeon-General Johnston inspected the detachment of this corps at Trevandrum on the 5th February 1874, and reports as follows:—

Barracks.

Barracks.—The lines occupied by the detachment (strength 86) are near the Residency. In these are two rows of huts of the usual structure—mud walls and tile roofing. The drainage is efficient, aided by declivitous ground configuration. The lines were clean.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The sanitary condition of the guard-room and place-of-arms was very satisfactory.

Water-supply.

Water-supply.—The source whence the men derive their drinking water is from a deep, open well unprotected by either wall or trapping; hence pollution of the water is inevitable from surface impurities, (and the surface is very impure, refuse and even human ordure being common, for there is no latrine) which freely enter it, while, from absence of trapping return waste water, soiled by the feet of the drawer, adds to the evil. The well should be supplied with a trap on precisely the same plan which has been given with such excellent effect to the wells in use by the detachment at Trichoor.

Hospital.

Hospital.—A detachment of 86 men from the Native Infantry Regiment garrisoning Palamcottah does duty at this station as an escort to the Resident. For the accommodation of the sick of this detachment a small hospital has been assigned, and is kept in repair by the Travancore Government. Placed at a convenient distance from the Residency and in the centre of a walled compound, this small structure consists of one ward sufficient for the wants of the casual sick. Four windows and a door secure efficient means of ventilation, whilst the site, with its natural slope, admits of good, natural drainage.

26th Regiment Native Infantry.

STATION—QUILON.

Arrived from Trichinopoly 19th January 1873.

Average strength	709
Do. present	709
Admissions	187
Daily sick	5
Deaths in hospital	5
Do. out of hospital	...
Pensioned	...
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissons.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Trichinopoly	29·30	1·10	·56	3·12	...
1871	Do.	35·68	1·12	·84	·42	·98
1872	Do.	130·66	1·51	·75	·15	1·05
Average ...	.....	65·21	1·24	·71	1·23	·67
1873	Quilon	25·52	·70	·70	...	·56

The following medical officers were in charge during the year:—

Surgeon-Major Duckworth, M.D.
Surgeon C. Lloyd, M.D.

The last-named submits the annual report as follows:—

Climate.—The climate during the year has been mild, and the influence on health generally good. Climate.

Marches.—The regiment has been on the march from 1st January till the 18th on its way to Quilon. Marches.

Sepoys' huts.—The site of the 26th Regiment lines is to the west of the cantonment a short distance from the sea, from which they are shut out by a belt of trees. The ground occupied by them is but a few feet above sea-level and very much sheltered on all sides by trees. They consist of parallel rows of huts with streets running north and south, facing each other, intersected in the centre by a broad road running from east and west. Structure is of bamboos covered with cocoanut palm leaves. Each stands separately united in front and in the rear by a continuous wall of bamboo and palm leaves. The walls of a few of the latter description inhabited by the native and non-commissioned officers being of mud. The streets which separate the men's huts are broad, and the drainage is natural; the soil composed of sand, which rapidly absorbs rain or other water. No attempts at drains exist. Lighting and ventilation are very defective. At a considerable distance from the lines in an open space are two enclosures used as public latrines; the excreta is removed daily and conveyed to pits dug for the purpose at a considerable distance from the cantonment. Sepoys' huts.

Nuisance.—None. Nuisance.

Water-supply.—The water-supply is obtained from 13 wells situated in and near the lines; the quality of the water is good, and the supply ample. Water-supply.

Sanitary arrangements.—The lines are weekly inspected, and strict sanitation and cleanliness are enforced. Sanitary arrangements.

Diet.—Provisions have been cheap, and the supply equal to the demand. The vegetables of the country are not easily obtained by the men, and the European kinds scarcely to be had. The average compensation for dearness of rice received per mensem by the sepoy has been Rupees 1-4-0, and rice is sold at the rate of 7 measures for the rupee. Diet.

Clothing. *Clothing.*—The clothing worn has been the white tunic and black trowsers until the setting in of the south-west monsoons, when the regulation red tunic and cloth trowsers have been ordered to be worn with the great coat in wet weather.

Foot-soreness. *Foot-soreness.*—Foot-sores occasionally occur from badly-fitting and ill-made boots, which, however, does not prevent them doing duty. They are simply excused wearing boots for a few days. For native troops sandals would be much more preferable, not only being cooler and more adapted to a hot climate and allowing more cleanliness, but also is what the sepoy is accustomed to.

Duty and exercise. *Duty and exercise.*—The duties of the men are light and in no way detrimental to health. The duties, which consist of parades, drills, French drills, guard-mounting, cleaning of arms and accoutrements, and duty roll calls, are light and in no way detrimental to health. The number of nights in bed are 5 per week.

Drill. *Drill.*—Mornings from 5-30 to 7, evenings from 5 to 6. Besides Sundays, Thursdays are allowed as holidays, and occasionally feast days.

Exercises. *Exercises.*—There is a talim khana in the lines for the recruits and young sepoys, who avail themselves of it with evident advantage. No recommendation has been necessary. Cricket had been established, but, except by a few of the men, was not taken to much. Gardening affords a useful employment to the men.

Lock-up rooms and cells. *Lock-up rooms and cells.*—The sanitary condition of the guard-room and cells has been satisfactory. There are two cells which are well lighted and ventilated with barred windows on top and a single door of entrance. The space within each cell measures 9 feet square, height 10¾ feet. The guard-room is well ventilated and lighted. The space within the guard-room where the prisoners are kept measures—length 25 feet, height 13½ feet, breadth 8½ feet.

Vaccination. *Vaccination.*—Vaccination has been regularly practised during the year by the medical subordinates. 138 cases were vaccinated, of which 137 were successful and one unsuccessful. No cases of small-pox occurred.

Diseases. *Diseases.*—The following is a concise medical history of the corps left on record by Surgeon-Major F. Duckworth, M.D., on temporarily relinquishing the medical charge on the 11th October 1873.

This concise report simply embraces a period of nine months, viz., from 1st January to 30th September 1873. In the beginning of this year the regiment was on its march from Trichinopoly to Quilon, and on the 1st January was encamped at Palamcottah. Arrived at Quilon on the morning of the 19th January, the whole journey having occupied 42 days inclusive of halts. The men and families enjoyed remarkably good health and immunity from epidemic disease, with the exception of three casual cases of small-pox among the children. The marching report was only submitted on the 14th February 1873. The general health of the corps for the short time it has garrisoned this place has also been quite satisfactory. There were 95 admissions into hospital for the past nine months, and adding to this six cases remaining sick from the previous year, makes a total of 101 cases of sickness comprising the diseases particularized in the following table :—

Febricula	17	General debility	4
Rheumatism and lumbago	11	Ganjah-smoking	1
Gastritis	1	Fistula in ano	1
Diarrhœa	3	Syphilis, primary and secondary	2
Dyspepsia	1	Gonorrhœa	1
Sore-eye	1	Wounds and injuries	6
Bronchitis	5	Dementia	1
Pleurisy	1	Pericarditis	1
Consumption	1	Hepatitis	1
Bubo, venereal	1	Hemicrania	1
Orchitis	6	Ear-ache	1
Synovitis	2		
Abscess and ulcers	17	Total	101
Itch and other skin diseases	14		

Out of the 101 cases three casualities have to be recorded, viz., one of *psoas abscess*, one *pericarditis*, and one *fistula in ano* accompanied with general atrophy and anæmia. Details of these fatal cases are given in the hospital journal. Only two men were sent away on sick leave for the benefit of their health, and one man, Private Coopoosawmy, No. 2,976, is now recommended the same indulgence on account of incurable ulcers of a leprotic nature in both feet. Taking the average numerical strength of the regiment at 678, the percentage of sickness to strength would be 17 and the mortality four per 1,000. The case of dementia, Private Munagee Row, No. 3,075, was transferred to the Lunatic Asylum, Madras, on the 26th September 1873 for final disposal. The most prevalent diseases for the period under notice were fevers, rheumatic affections, ulcers, and skin affections.

The following is a detailed list of diseases of fighting men treated in hospital since I assumed the medical charge of the corps (exclusive of the detachment at Trichore) on the 12th of October 1873 :—

Febricula	4	Venereal diseases	3
Phthisis pulmonalis	2	Stricture of urethra	1
Itch and skin diseases	14	Hydrocele	2
Abscess and ulcers	8	Hydrothorax	1
Bronchitis	4	Albuminuria	1
Hemicrania	2	Debility	4
Dysentery	2		
Diarrhœa	2	Total	52
Rheumatism and synovitis	2		

During the past three months there have been two deaths amongst the men, one from phthisis pulmonalis and the other from hydrothorax. One man has been sent to his native country, Vellore, with incipient tubercular disease in hopes of benefit from the change. The corps continues in a good condition both in discipline and physique. Skin eruptions of a persistent nature have been most frequent, but generally speaking there has been a great immunity from disease.

Hospital ventilation.

Hospital ventilation.—Ventilation of hospital perfect.
No overcrowding during the year.

Drainage and latrines.

Drainage and latrines.—No well-built latrines. There are simply two enclosures made of bamboo and cocoanut leaves. The ground is kept as clean as circumstances would permit, and the sweepings are daily carted away to a distance and buried.

The hospital latrine is small and compact, and the earth sewage is carried out as efficiently as circumstances would permit.

Hospital water-supply.

Hospital water-supply.—Water-supply has been satisfactory.

General conclusions.

General conclusions.—The general health of the regiment during the past year has been on the whole satisfactory. The actual number treated in hospital is far less than that of the previous year, being 193 for the present against 870 of the past year. There were five deaths during the year, viz., one from phthisis pulmonalis, one pericarditis, one hydrothorax, one fistula in ano, and one psoas abscess.

Deputy Surgeon-General Johnston inspected this corps on the 3rd of February 1874, and reports as follows :—

Barracks.

Barracks.—The lines with the contained sepoys' huts have been fully described in former Inspection Reports, to which reference may be made. Briefly stated the site is to the east of the town of Quilon, about one-third of a mile from the sea. The soil is a loose sand on a laterite basis. The huts are scattered over a wide area, and are constructed of bamboo and cadjan—materials ill-adapted for the protection of the sepoys and their families from the inclemency and force of the persistent rains of the south-west monsoon. Inspected with all necessary minuteness these lines were found in excellent sanitary condition, the huts in good repair, refuse or sewerage matter having no place in the lines. Since last report a well-made broad road has been made through the centre of the lines, where formerly there was a mere sandy track.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—In association with the medical officer attached to the regiment I made a circuit of the cantonment, and found every thing satisfactory. The sanitary condition of the public buildings, the guard-room, cells, &c., was excellent. There are no cess-pools or foul drains connected with latrines or lines.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—The conservancy of the neighborhood of the barracks and station generally is satisfactory.

Hospital.

Hospital.—The hospital described in former Inspection Reports, but which had been vacated for repair when the last report was drawn up, has, after the completion of these repairs, been re-occupied. On the present occasion the building was found in excellent structural condition, the wards clean, and every thing within testified to the care and attention to his duties of the medical officer in charge.

Deputy Surgeon-General Johnston inspected the detachment of this corps at Trichoor on the 31st January 1874, and reports as follows :—

Barracks.

Barracks.—Two companies of the Native Infantry cantoned at Quilon garrison this station. It is 45 miles to the north of Cochin, and distant from the coast line about six miles. An elevated site and a loose, absorptive argillaceous soil give to the lines dryness, aided by intersecting well-constructed masonry drains, which carry of storm water and prevent sewage collections. Within the lines are four parallel ranges of huts, each range being under the same continuous roof, a wall in the centre from the ridge to the flooring running the entire length of the range intersected within and at right angles, the sub-divisions forming

the huts in which the sepoys with their families reside. The lines were found clean, the drains free from sewerage and refuse water, and the huts in very fair structural condition.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The place-of-arms, guard-room, and hospital were minutely inspected and found perfectly clean. There are no cess-pools or foul drains in connection with the latrines or lines.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—The conservancy of the neighbourhood of the lines is satisfactory.

Hospital.

Hospital.—The hospital is located in the western portion of the main building devoted to the general use of the detachment as guard-rooms and place-of-arms.

It was, on the present occasion of its inspection, found clean and well arranged.

32nd Regiment Native Infantry.

Station—Trichinopoly.

Arrived from Hooshungabad 6th February 1873.

Average strength	681
Do. do. present	659
Admissions	973
Daily sick	18
Deaths in hospital	2
Do. out of hospital...	2
Pensioned	1
Sick leave	22

The following return shows the rates of sickness, deaths, and invaliding, as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Hooshungabad...	77·50	2·32	·72	1·16	1·74
1871 ...	Do.	68·29	1·72	·57	·57	·86
1872 ...	Do.	86·31	2·16	1·29	1·72	1·29
Average ...	... ...	77·36	2·06	·86	1·15	1·29
1873 ...	Trichinopoly	147·64	2·73	·58	·14	3·23

The following medical officers were in charge of this corps during the year:—

Surgeon C. Lloyd, M.D.
Surgeon-Major J. Fitzgerald.

The last named reports as follows :—

Climate.

Climate.—The climate of this station in the past year may be divided into three seasons, viz., hot, rainy, and cold. The hot commences about the end of February and terminates about the end of June. The prevailing diseases—miasmatic, lung, and eye affections. The rain commences in June with occasional showers and terminates in November. Prevailing diseases—ague, dysentery, and eye affections. The cold weather has been cool and pleasant in the morning and evening, with a hot sun during the day. Prevailing diseases—malaria, bowel-complaints, and lung affections.

The range of temperature has not varied much throughout the year.

Marches.

Marches.—The Head Quarters and Left Wing marched from Hooshungabad and Right Wing from Kamptee and arrived here; the former on the 7th March 1873, and the latter on the 31st March 1873.

Sepoy huts.

Sepoy huts.—The huts or lines of the men are on the left bank of the Wyaconda canal; they are raised, situated on red laterite, and generally speaking healthy.

The huts, owing to their manner of construction, cannot be said to be well ventilated. The barrack and guard rooms are well ventilated.

The drainage, which is very superficial, has been sufficient.

Water-supply.—The water for the past year has been of good quality and sufficient in quantity; the supply is from wells, tanks, and canal. Water-supply.

Sanitary arrangements.—Good. Sanitary arrangements.

Diet.—The men of the regiment support themselves. Diet.

Provisions and vegetables abundant. Compensation for dearness of rice is issued every month.

The amount of pay issued to men, particularly with large families, is insufficient to give a nutritive and varied diet, many men being in hospital for debility and anæmia attributed to the above cause.

Clothing.—The clothing has been sufficient and adapted to the climate. Clothing.

Foot-soreness.—Foot-soreness is of very frequent occurrence, owing to badly-fitting boots being worn without stockings. Foot-soreness

The subject is well known to authorities.

Duty and exercise.—The ordinary garrison and regimental duties do not appear to affect the health of the men. Duty and exercise.

Average nights in bed four.

Drill.—The usual guards and parades, generally from 5 to 7 in the morning and from 4-30 to 6-30 in the evening, do not appear to be prejudicial to health. Drill.

Lock-up rooms and prison cells.—The guard-rooms are in good condition and well ventilated. Lock-up rooms and prison cells.

Vaccination.—Vaccination kept up. No small-pox has occurred among the men. Vaccination.

No revaccination.

Diseases.—Dengue fever has prevailed as an epidemic in the months of March, April, and May. Almost every man of the regiment, together with their wives and families, have gone through it, and has left many in a very anæmic and debilitated state. Malarious fevers and bowel-complaints have also prevailed, which I attribute to climatic influence. Diseases.

The principal diseases for the past year have been in the order of frequency: dengue, malarious fevers, diseases of the stomach and bowels, scabies, affections of eyes, contusions, sprains and shoe-bites, debility and rheumatism.

Two deaths occurred in hospital, one the result of dengue and debility and one from malarious fever. Here were also two deaths of men out of hospital on sick certificate, one from pneumonia and one from ague.

Dengue, 562.—This disease generally set in with high fever, which lasted from two to thirty-six hours, and was followed by much pain and stiffness of all the joints, and sometimes considerable swelling; this disease prevailed as an epidemic; the number here entered by no means represents the number attacked, as the men, women, and children equally suffered. Several plans of treatment were adopted, but none seem to have effect.

Malarious fevers, 137.—Intermittent fever of the tertian and quartan types was the prevailing form of this disease. All cases suffered equally from it, particularly the old and debilitated. Convalescence in many cases was protracted, and some were sent to their houses for recovery. The treatment generally adopted was a purgative if necessary on admission, followed by one or more large doses of quinine, and when the febrile exacerbation was checked, bitters with combination of iron. This plan of treatment served to answer very well. Malarious fevers.

Disease of stomach and bowels, 47.—I would attribute those diseases to local climatic influences, as moisture and dampness acting on a system impaired by debility, insufficient or improper food, or disease. Many modes of treatment were tried by me in the more severe cases but without much benefit, unless combined with stimulants and an allowance of meat. I believe I have seen greater results from ipecac. in ℈ doses preceded by tinct. opii than from any other drug. A few had to be sent to their houses for change of climate and recovery. Disease of stomach and bowels.

Ophthalmia, 36.—Under this head were treated cases of simple conjunctivitis, commonly known as "country sore-eyes;" there was no difficulty in the cure with solutio argenti nitras and Lotio frigid. Ophthalmia.

Scabies, 32.—This disease was mainly due to contagion combined with dirt and want of cleanliness, as also to an impoverished state of the blood. Recovery in almost all the cases was very tedious, and spread over a length of time. Scabies.

Hospital ventilation.—Ventilation good. Hospital ventilation.

Owing to the epidemic of dengue other buildings and tents were used for the sick.

No overcrowding.

Drainage and latrines.—The drainage about the hospital good, and latrine dry-earth system carried out. Drainage and latrines.

Epidemic.—No epidemic broke out or spread in hospital. Epidemic.

General conclusions.—From this return, with the exception of the epidemic of dengue fever, it may be deduced that the general health of the regiment has been on the whole satisfactory. General conclusions.

Deputy Surgeon-General Johnston inspected this corps on the 6th March 1874, and reports as follows :—

Barracks.

Barracks.—In the Inspection Report submitted on the 3rd March 1873 a detailed statement was given as to the site of the lines, sepoys' huts, buildings, guard-rooms, &c., pertaining to this regiment garrisoning this portion of the town and cantonment of Trichinopoly, and to this report reference is requested on the present occasion for all the information called for under this heading. The lines were carefully inspected, and were found all that could be desired; the huts were in good order, the streets clean, and the earth-work street drains free from sewerage and refuse. Drains of so primitive a nature—mere furrows in the earth—without stone-facing are as useless as they are, in a health point of view, dangerous, for the absorptive earth retains the sewerage, at least much of it, so that now it must be supersaturated with organic matter in its most objectionable form, giving forth at all times mephitic vapours, which must tend to lower vitality and induce physical depression. In a country where gneiss slabs are easily attainable V-shaped drains should be given to these lines with least delay possible.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—For the information called for under this paragraph reference is requested to the last year's report alluded to in the preceding paragraph; on the present occasion the barracks or place-of-arms, latrines, guard-rooms, and cells were found clean and in a satisfactory condition.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—Good.

Hospital.

Hospital.—For information required under this heading reference is requested to the Inspection Report of the Hospital, 26th Regiment Native Infantry, submitted on the 2nd November 1871; on the present occasion of its inspection the hospital and its wards were found clean and well arranged, and the internal economy efficiently carried out.

38th Regiment Native Infantry.

Station—Trichinopoly.

Arrived from Rangoon 21st February 1871.

Average strength	642
Do. do. present	640
Admissions	425
Daily sick	13
Deaths in hospital	3
Do. out of hospital	6
Pensioned	23
Sick leave	26

The following return shows the rates of sickness, deaths, and invaliding, as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Rangoon	82·98	4·21	3·07	·48	7·94
1871	Trichinopoly	50·42	1·69	1·85	5·05	1·34
1872	Do.	110·59	2·42	1·16	1·46	1·16
Average	... ...	81·33	2·77	2·02	2·33	3·48
1873	Trichinopoly	66·40	2·03	1·40	3·58	4·04

The following medical officers have been in charge during the year:—

Surgeon-Major Dickenson, M.D.
Do. J. A. Cox, M.D.
Surgeon G. Williamson, M.D.
Do. H. D. Cook, M.B.
Do. C. Lloyd, M.D.
Do. J. H. Ritchie, M.D.

The first-named medical officer reports as follows :—

Climate.—The climate of Trichinopoly is reported to be healthy on the whole. Climate.

Marches.—None. Marches.

Sepoy huts.—The regimental lines run east and west. The slope of the drains, which are pucka, is not sufficient to carry off the water without being swept out, and this is done daily. Sepoy huts.

Nuisance.—None. Nuisance.

Water-supply.—There are above a dozen wells in the neighborhood of the lines and in them for general purposes. Water-supply.

The good water from two or three wells only used for drinking purposes.

Sanitary arrangements.—The sanitary arrangements of the lines are properly attended to. Sanitary arrangements.

Diet.—Provisions are reported to have been dear latterly ; vegetables plentiful and cheap. Diet.

The usual compensation has been issued.

Clothing.—Clothing sufficient and adapted to the seasons as seems necessary. Clothing.

Foot-soreneses.—Foot-soreness has not prevailed to any extent. Foot-soreness.

Duty and exercises.—The amount of duty performed by the regiment has not been excessive, and has had no ill-effect upon the sepoys. Duty and exercises.

Drill.—The usual drills, morning and evening, from 5-30 A.M. to 6 or 7 A.M. and from 4-45 P.M. to 6 P.M., have obtained, with holidays (Sundays, and Thursdays, and on other days at times), with no ill-effect. Drill.

Exercises.—There is a room in the lines where the sepoys may wrestle and use dumb-bells if they please. Exercises.

Lock-rooms and prisons.—Sanitary condition of cells satisfactory. Lock-rooms and prisons.

No defect noticed.

Vaccination.—Vaccination amongst the children of the regiment is always being carried on. Vaccination.

No death from small-pox is recorded.

Diseases.—No epidemic is recorded to have taken place during the past year ; it was in 1872 that "dengue" prevailed as an epidemic. Diseases.

The health of the 38th Regiment Madras Native Infantry during the year 1873 contrasts favorably with the year 1872.

In 1872 the admissions amounted to 738 with 8 deaths, while in 1873 only 433 came under treatment with 9 deaths. It must be observed, however, that in the former year "dengue" prevailed as an "epidemic," which, of course, caused a large number of admissions.

Hospital ventilation.—Hospital well ventilated. Hospital ventilation.

No overcrowding.

Drainage and latrines.—Drainage good. Dry-earth conservancy carried out in hospital latrine. Drainage and latrines.

Hospital water-supply.—Water-supply of hospital satisfactory. Hospital water supply.

Deputy Surgeon-General Johnston inspected this regiment on the 3rd March 1874, and reports as follows :—

Barracks.—On the 5th March 1873 the inspection report of this regiment was submitted, and it contained a detailed statement of all the subjects on which information is called for under this paragraph; and since, during the interval that has elapsed, no change has been effected, it is requested that reference may be made to it on the present occasion. Inspected with the necessary minuteness, the lines were found scrupulously clean, the street drains equally so and free from sewerage. The sepoys' huts in good repair. Barracks.

Sanitary condition of all buildings.—And so too with the public buildings, guard-rooms, place-of-arms, and school-rooms. The latrines are in good condition and working order on the dry-earth system. The latrines—one for the sepoys, the other for their wives and children—are roofless, and defecation is effected on the ground. The evils of such a system are sufficiently obvious, and it would be well to give to this regiment and also to the 19th Regiment latrines constructed on the same plan—the trench system, and a very admirable one it is. Sanitary condition of all buildings.

Conservancy of the neighborhood.—Much of what has been advanced under this paragraph in respect of the 19th Regiment, *mutatis mutandis*, is equally applicable to the 38th Regiment, and to the inspection report of the former, submitted on the 2nd instant, reference may be made. Conservancy of the neighborhood.

Hospital.—In the inspection report alluded to in paragraph 1 of this report will be found a descriptive statement of all the conditions as called for under this paragraph, and to this document reference may be made. On the present occasion the inspection of the hospital afforded satisfactory proofs of a well-arranged interior economy and management on the part of the medical officer. Hospital.

DISTRICT OF MALABAR AND CANARA.

Average strength	1,972
Do. present	1,927
Total admissions	662
Daily sick	22
Deaths in hospital	5
Do. out of hospital	9
Pensioned	68
Sick leave	36

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Rate per Cent. of				
	Average Strength present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	43·60	1·59	·54	3·06	·41
1871	52·54	1·91	1·25	1·98	1·25
1872	35·15	1·36	1·08	·69	1·08
Average	43·76	1·62	·95	1·91	·91
1873	34·35	1·14	·70	3·44	1·82

The following corps were serving in this district on the 1st July 1873 as shown by the Army List :—

9th Regiment Native Infantry.
25th do. do.
34th do. do.

9th Regiment Native Infantry.

STATION—CANNANORE.

Arrived from Trichinopoly on 28th February 1871.

Average strength	643
Do. present	643
Admissions	111
Daily sick	5
Deaths in hospital	1
Do. out of hospital	3
Pensioned	...
Sick leave	7

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Trichinopoly	38·23	1·32	·73	1·02	...
1871	Cannanore	48·02	2·04	1·26	...	·70
1872	Do.	26·82	1·13	·90	...	1·51
Average	.....	37·69	1·49	·96	·34	·73
1873	Cannanore	17·26	·77	·62	...	1·08

Surgeon J. H. Richie was in medical charge of this corps during 1873, and reports as follows :—

Climate.—The climate of this station is characterized by excessive rainfall in June, July, and August, great degree of humidity, and moderate heat. There was nothing unusual in the climate during the past year except the rainfall was under the average, being 105 inches. Judging from the number of admissions into hospital, the climate seems to be favorable for sepoys ; and those diseases which caused the greatest number of admissions were for the most part very trivial ; fevers, dysentery, and diarrhœa being rare and mild in type. Climate.

Marches.—The regiment has not been on the march during the year. Marches.

Sepoy huts.—The barrack guard-room is part of a long range of buildings, and is well ventilated ; but the accommodation is barely sufficient for the number of men on guard. A guard-room for the hospital is much required. No recommendations made. Sepoy huts.

Nuisance.—There are no nuisances from latrines, urinals, &c. The ashpits and manure heaps are outside the lines, and the refuse is carted daily to some distance. Nuisance.

Water-supply.—The water-supply is obtained from wells in the lines. Is good, but during last hot months was not sufficient. No recommendations. Water-supply.

Sanitary arrangements.—Not applicable to native troops. Sanitary arrangements.

Diet.—Provisions are considered dear at this station. Vegetables are abundant. Diet.

Clothing.—The clothing of the men during the hot season is the white coat and black light trowsers, and in the cold and rainy seasons the red tunic and black cloth trowsers ; also great coat when necessary. This has been sufficient and well adapted to the climate of this station. No recommendations necessary. Clothing.

Cases of foot-soreness.—Cases of foot-sores from wearing bad boots are quite common. They are generally excused wearing boots until the sores heal. They are, no doubt, owing to the boots being badly made and to bad leather. No recommendations necessary. Cases of foot-soreness.

Duty and exercises.—The duties of this regiment are principally parades and in furnishing its own and the cantonment guards (every other week). Its own guards are the quarter, hospital and mess, and the cantonment, fort, magazine, commissariat, and garrison hospital. These have had no injurious effect on the health of the men. The average number of nights in bed is six in seven. This varies thus : when the Mussulmans have leave the Hindoos have to furnish the guards, and their tour of duty comes oftener, and *vice versâ*. No recommendations necessary. Duty and exercises.

Drill.—There are, as a rule, three parades a week in the morning, but in the drill season there are evening parades also. Each parade lasts about an hour and-a-half. The morning ones from 5½ to 7 and the evening from 5 to 6. These have no injurious effects on the health of the men. No recommendations necessary. Drill.

Exercises.—There is a cricket club, but only a few practise this game. There is a thalim-khana in the lines for the recruits and young soldiers. Some men employ their leisure hours in gardening. No recommendations necessary. Exercises.

Lock-up rooms and cells.—There are two solitary cells situated at the back of the barracks. The accommodation gives a superficial area of 96 feet and a cubic space of 960 cubic feet per cell for each prisoner. Ventilation is by grated windows at the top, and is satisfactory. Attached to each cell, and communicating with it by a door, is a small room, which is used as a latrine. The cells are kept clean, and no defects injurious to the health of the men have come under my notice. Lock-up rooms and cells.

Vaccination.—Vaccination has been regularly kept up among the families of the men. 142 cases were vaccinated ; successful 123, unsuccessful 19. No cases of small-pox in the regiment during the year. 158 men were revaccinated ; 116 successful, 42 unsuccessful. Vaccination.

Diseases.—The admissions from zymotic diseases being very few, no lengthy remarks as to their cause are necessary. Diseases.

There were 12 cases of ague and 8 of dysentery. I cannot attribute to any special cause.

There were three admissions and two deaths during the year from phthisis pulmonalis. The first case—a drummer over 25 years' service—proved fatal in two months. The other two cases were benefited by treatment and are now at duty. The remaining case—a chronic one—died on sick leave, being under treatment on 1st January last. There were only three admissions from bronchitis. I cannot attribute these chest affections to any particular cause.

Hospital ventilation.—The ventilation is by windows, doors, and ridges in roof. Is satisfactory. No representations. Hospital ventilation.

There has been no overcrowding.

Drainage and latrines.—The drainage is good and the latrine, which has been recently built, is clean, well ventilated, and on the dry-earth principle, which is efficiently carried out. No recommendations. Drainage and latrines.

Hospital water-supply.—The hospital supply is received from the lines. Is good. Hospital water-supply.

General conclusions.

General conclusions.—The health of the regiment during the year has been very satisfactory, there being only 111 admissions, 54 less than 1872 and 218 less than 1871. The principal diseases were ague 12, itch 11, rheumatism 9, dysentery 8, and general debility 7.

Deputy Surgeon-General Johnston inspected this corps on the 15th December 1873, and reports as follows :—

Barracks.

Barracks.—The lines of this regiment have their site in the north-east aspect of the cantonment and not far from the eastern angle of the parade ground common to the two native regiments garrisoning this station. The declivitous nature of the surface facilitates drainage, aided by earth-worn drains by which the lodgment of storm and other water are prevented. The sepoys' huts are made up of four parallel rows, each divided in the centre by a longitudinal wall from floor to roof ridge and running the entire length of the room. This wall is intersected at right angles by other inner walls, and the subdivisions thus resulting give space accommodation to the sepoys and their families. Walls four feet high front each row, and these, intersected by inner walls, carried up to the range walls, give small isolated yards to each family. Broad unpaved streets separate these four rows from each other, and they have on either side, and close to the four-feet wall, deep earth-worn channels to carry off storm and other water. The cleanliness of the lines, the absence of refuse matter from the streets and hut enclosures, and of sewerage from the street drains were proofs of the careful attention bestowed by the regimental authorities on the sanitary condition of the sepoys and their families.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The guard-rooms, cells, and place-of-arms are, in respect of sanitary condition and arrangement, all that could be wished for. There are neither cess-pools nor foul drains anywhere within the regimental lines. Latrines have not been provided, nor does it appear that this is likely soon to be.

Conservancy of the neighborhood.

Conservancy of the neighborhood.—Under regimental surveillance the conservancy of the neighborhood may be said to be satisfactory.

Hospital.

Hospital.—The structural condition of the hospital is good. Internally the ward was found scrupulously clean ; and every proof was present of a careful attention to his duties by the medical officer in charge.

25th Regiment Native Infantry.

Station—Cannanore.

Arrived from Moulmein 14th February 1869.

Average strength	646
Do. present	639
Admissions	199
Daily sick	6
Deaths in hospital	...
Do. out of hospital	...
Pensioned	50
Sick leave	13

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Cannanore	59·59	2·14	·42	2·14	...
1871 ...	Do.	34·18	1·11	·90	6·15	·75
1872 ...	Do.	25·	·75	·43	...	·43
Average ...	.....	39·59	1·33	·58	2·73	·39
1873 ...	Cannanore	31·14	·93	...	7·73	2·01

The following medical officers were in charge during the year:—

Surgeon-Major J. A. Cox, M.D.
Surgeon S. L. Dobie.
Assistant-Surgeon F. M. Rickard.

The first-named officer reports as follows:—

Climate.—Climate may be divided into three seasons. The hot season from February to May, when the thermometer ranges from 80° to 90°. From June to October the monsoon from south-west, when there is rain with scarcely any intermission, high winds, &c. In October the north-east monsoon commences, severe thunder-storms, lightning and heavy showers. From December to February there are light cool winds at night, but strong land winds in the middle of the day. During the south-west monsoon the thermometer scarcely ever rises above 75° or 80°, and sometimes goes down to 65°. In December and January heavy fogs hang about the surrounding hills, but not apparent close to the shore. There was no unfavorable influence upon health during the past year. Climate.

Cannanore ... ... { Latitude 11° 42′ N. / Longitude 75° 27′ E.

Marches.—The regiment has not been on march or at sea. Marches.

Sepoy huts.—The lines consist of rows of thatched mud huts to the north of Native Infantry Parade ground. The site is somewhat low, but the natural drainage is good, and the lines are healthy. Sepoy huts.

Each private sepoy gets a space of 30 feet by 13 feet, which he divides into hut, out-house, and yard; there is generally one door and no window to the hut. The extent of his family and the number of his relations living with him determine the amount of space which he enjoys. There are small holes in the walls of the huts to answer for windows, notwithstanding which the ventilation is defective. The guard-room is not well ventilated, there being no ridge ventilation. The drainage is good throughout.

Any Nuisance.—No nuisance has been observed. Nuisance.

Water-supply.—Water is obtained from wells in the lines. It is both good and plentiful. Water-supply.

Sanitary arrangements.—Sanitary arrangements good. Sanitary arrangements.

Diet.—The men purchase their own food. Rice and fish are the chief ingredients of food. Rice was sold at the rate of 7½ measures per rupee. Troops received compensation at an average of Rupees 1-3-11 per mensem. Diet.

Clothing.—Sufficient and suitable. Clothing.

Foot-soreness.—Such cases occur frequently, chiefly from the men not wearing socks and boots of proper size. They are excused from wearing boots until their feet are well. No remedy. Foot-soreness.

Duty and exercise.—The amount of duty performed is moderate. No unfavorable influence upon health. Duty and exercise.

6·5 nights in bed.

Drill.—During the drill season, drill takes place morning and evening, weather permitting, for an hour each time; but at other seasons there are only three fixed drills per week. No unfavorable influence upon health. Drill.

Prison-rooms and lock-up cells.—There are two prison cells used, and they are in good order and well ventilated. Each cell has 96 superficial feet and 960 cubic space, and a latrine with 67½ feet superficial and 438¾ feet cubic space. Prison-rooms and lock-up cells.

Vaccination.—Vaccination is performed regularly. Vaccination.

Number of cases of small-pox	...	1.	No death.
Number vaccinated	...	134	
„ successful	...	127	
„ unsuccessful ...	...	7	

Diseases.—There was one case of modified small-pox, one of chicken-pox, seven of dysentery, and twenty-six of fever treated in the hospital during the past year. All of these cases were of a mild type. 46 per cent. of the cases of fever occurred in the last quarter of the year, when land winds were prevalent. Diseases.

During the land winds a general malaise is produced upon the system, and febricula ensues upon the slightest exciting cause. On the whole the health of the regiment for the year under review was excellent.

Of the diseases treated under the head of phthisis pulmonalis, there were five cases of bronchitis which arose from exposure to cold, two of asthma which occurred in persons who were predisposed to the disease, excited by exposure to the humid atmosphere of this climate, and one of pleurisy and one of pleuro-pneumonia. In the latter both diseases were co-existent, and occurred in a young man of 18, the direct exciting cause being traceable to great muscular exertion. There were no casualties during the year.

Hospital ventilation.—The hospital is fairly ventilated. There was no overcrowding during the past year. Hospital ventilation.

Latrines and drainage.

Latrines and drainage.—A latrine for the hospital was built during March, and has been used since the beginning of April. In it there are six seats; the floor is laid with asphalte. In connection with the latrine is a room for the storing of dry earth. Dry earth is used, and the working has been good.

Hospital water-supply.

Hospital water-supply.—Water is brought to hospital by puckallies from wells in the lines and kept for use in earthen vessels.

General conclusions.

General conclusions —From my own personal observations, and from the history left by my predecessor, I find that this regiment has enjoyed excellent health and perfect immunity from death during the past year.

Deputy Surgeon-General Johnston, M.D., inspected this corps on the 15th December 1873, and reports as follows:—

Barracks.

Barracks.—The regimental lines are situated on the north-east boundary of the cantonment, not many yards from the parade ground, common to the other native corps garrisoning this station. The natural slope, on which the huts are built, facilitates drainage, aided by drains, properly placed, to intercept and carry off surface water. The huts are the usual mud-walled structures, mean, squalid, ill-ventilated abodes. The roofs are cadjan. Twelve rows of these huts are placed back to back, a narrow lane-like interval separating the bases, though the roofs meet in their overhanging or free margins. Six broad roads, intersected by a central one, at right angles, separate the rows of huts from each other. On either side of these roads, drains, mere water-worn excavations, run. These were found free from liquid or other refuse matter. The lines were generally clean and well conserved.

Sanitary condition of all buildings.

Sanitary condition of all buildings —The guard-rooms and cells, place-of-arms, and all the other subsidiary buildings pertaining to this regiment were minutely inspected by me and found in very fair order. Latrines are much required.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—Under regimental superintendence the conservancy of the neighbourhood of these lines is effectively maintained.

Hospital.

Hospital.—The hospital and its subsidiary buildings were minutely inspected by me in association with the medical officer in charge. The wards were scruplously clean, and the well-being of the sick evidently well attended to. In the Inspection Report of this hospital submitted on the 24th November 1872 the descriptive statement then given was further illustrated by a ground-plan, indicating the information called for under this heading, and to this report it is requested that reference be made.

34th Regiment Native Infantry.

Station—Mangalore.

Arrived from Bellary 30th December 1870.

Average strength	683
Do. present	645
Admissions	352
Daily sick	11
Deaths in hospital	4
Do. out of hospital	6
Pensioned	18
Sick leave	16

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Mangalore	49·18	1·63	1·04	3·57	...
1871	Do.	71·30	2·54	1·58	...	2·30
1872	Do.	53·98	2·22	1·92	2·07	1·33
Average		58·15	2·13	1·51	1·88	1·21
1873	Mangalore	54·57	1·70	1·46	2·63	2·34

Surgeon-Major Dempster has been in charge of this corps during the year, and reports as follows :—

Climate.—There is nothing unusual to record regarding the climate during the past year, with the exception of the rainfall, which was below the average. 116 inches fell ; the average is about 128 inches. Climate.

Marches.—Has not been on the march. Marches.

Water-supply.—Water good and abundant all the year round. No recommendations have been necessary. Supply obtained from wells in the lines. Water-supply.

Sanitary arrangements.—Sanitary arrangements have been satisfactory. No local causes of disease have required removal. Sanitary arrangements.

Diet.—Provisions during the past year have been somewhat dearer than the previous year. Vegetables are generally plentiful. The usual rice compensation has averaged Rs. 1-5-4 per man. Diet.

The diet is on the whole good. Fish is very abundant and cheap, but mutton is dear, consequently many are unable to afford it.

Clothing.—The clothing is sufficient and adapted to the climate. No changes have been recommended. Clothing.

Foot-soreness.—There have been many cases of slight foot-soreness unavoidable in men wearing English boots without socks, but only two admissions into hospital have taken place in consequence. On the slightest abrasion occurring, the men are excused wearing their boots for a few days. Foot-soreness.

Duties.—The duties of the troops are light ; they are required only to furnish the usual regimental guards, and have not unfavorably influenced their health. Duties.

Average number of nights in bed nine.

Drill.—During the drill season parades generally take place from 6 to about ½ past 7 in the morning, and in the evening from 5 to 6. Thursday is observed as a holiday. Drill.

No unfavorable influence on health has been exercised.

Drainage and latrines.—No alteration has been yet made in the guard-room which was before represented as too small for the requirements. It is, however, well ventilated. The cells have been represented as too damp for use during the rains, and an additional roof is to be erected over one set which are on the bomb-roof plan, the walls of which are consequently exposed to the heavy rains. Drainage and latrines.

Vaccination.—Vaccination is strictly carried out. Two cases of small-pox have occurred among the men who both before had had the disease, and were also vaccinated. No deaths have taken place. The great number of unsuccessful cases is in consequence of carelessness in not properly protecting the arm after the operation, and frequent loss of lymph supply has occurred thereby, or a much greater number would have been vaccinated. Vaccination.

Total vaccinated among the troops and families 162, 72 were successful; 19 men were re-vaccinated, of these 15 were successful.

Diseases.—No epidemic diseases have prevailed. Diseases.

The regiment has been stationed at Mangalore throughout the year. The average strength has been 645. The causes of mortality were 1st—

In hospital one from dysentery, one phthisis pulmonalis, one Bright's disease, and one rupture of heart ; and

Out of hospital one from dysentery, one gastritis, one Bright's disease, one general debility, and two from cause unknown ; these, with the exception of the one from gastritis, died while on sick leave or furlough ; that from gastritis was a jemadar who died suddenly after excessive drinking ; in consequence of the suddenness of his death a *post-mortem* examination was made, and the stomach and its contents were sent to the Chemical Examiner for analysis, but no poison was detected.

The total deaths per 1000 to strength was 15·50. The proportion of admission from zymotic diseases were rather more than one-half, and the mortality one-fifth of total deaths.

Only two cases of phthisis pulmonalis were admitted. No unusual number of admissions for other chest diseases took place.

Hospital ventilation.—Ventilation is good. No representations have been made. Hospital ventilation.

Drainage and Latrines.—Drainage is good ; the latrines are kept clean, and the dry-earth system is efficiently carried out. No representations have been needed. Drainage and Latrines.

Hospital water-supply.—Water-supply is sufficient and good. Hospital water-supply.

General conclusion.—The sanitary state of the regiment during the past year has been satisfactory. The admissions were 13 more than the previous year, but this I attribute to the increased number of parades that have taken place during the latter part of the year, causing the admission of more cases of temporary sickness ; the average daily number of sick has been 11·40 against 14·42 the previous year. Toddy is very cheap and too freely partaken of by the men, many of whom are much debilitated by its use. The principal diseases have been ague, bronchitis, diarrhœa, dysentery, ulcers, abscess and itch. There were four deaths in hospital and six out of hospital. Percentage of deaths to strength per 1000 was 15·50. General conclusion.

Deputy Surgeon-General Johnston, M.D., inspected this corps on the 9th December 1873, and reports as follows :—

Barracks.

Barracks.—For the descriptive account of the site of the lines and buildings pertaining to this regiment it is requested that reference may be made to the last Inspection Report, in which will be found recorded all the information called for under this paragraph. The sanitary condition of the lines is generally good. The huts and streets of the native lines are generally clean, and the utmost care is apparently bestowed in keeping them so. The drainage is very effective, thanks to the declivitous nature of the surface ground. In these huts ventilation must be reduced to a minimum, a defect which cannot fail to react most injuriously on the health and efficiency of the sepoy inmates, especially when regard is had to the fact that in each hut abode are huddled together, not only the sepoy himself, but also his family, and this too for months together, night and day, owing to the persistent rains of the south-west monsoon. Such a defect is common to all our sepoy lines, and is, therefore, not more marked here than elsewhere.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The public buildings of this regiment are structurally in very fair order. There are two latrines attached to the sepoy lines; inexpensive structures, but answering every useful object. They are kept clean, and are largely resorted to by the men. Dry earth is in use and a due conservancy is enforced. The hut conservancy is well attended to.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—For information under this paragraph, *vide* Inspection Report of the Civil Dispensary, dated 8th instant.

Hospital.

Hospital.—In the Inspection Report of this Regimental Hospital submitted on the 29th November 1871, together with the descriptive statement then given, indicating the information required under this heading, a ground-plan was appended illustrating the description, and to this reference may be made. On the present occasion of inspecting this hospital and its subsidiary buildings, there was wanting nothing which could detract from the evidence afforded of the zealous attention bestowed on his duties by the medical officer in charge of the regiment. Cleanliness, order, and regularity were everywhere present in the wards and attached buildings.

MYSORE DIVISION.

Average strength	2,983
Do. present	2,745
Total admissions	2,407
Daily sick	69
Deaths in hospital	26
Do. out of hospital...	8
Pensioned	53
Sick leave	56

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Rate per Cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	71·47	2·58	1·38	5·25	2·19
1871	77·75	2·78	1·27	3·71	2·94
1872	96·70	3·02	1·03	3·04	2·90
Average	81·97	2·79	1·22	4	2·67
1873	80·40	2·51	1·13	1·77	1·87

The following corps were serving in the division on the 31st of December 1873 :—

Head-quarters Sappers and Miners.
23rd Regiment Native Infantry.
36th do. do. do.
30th do. do. do.

Deputy Surgeon-General Ranking was in charge of this division and that of the Ceded Districts during the year, and his combined report on these is herewith given unabridged.

MILITARY.

Public Health.

General health good.—The state of public health, as illustrated by the returns which have reached this office, has been good, both as applies to the troops and to the civil population in both army divisions of my charge. The year has been especially marked by an almost entire exemption from cholera. A few deaths amongst the civil population have, it is true, been recorded, but they are much fewer than for many years past, and are isolated (sporadic) cases, and not the result of epidemic influence. General health good. No epidemic cholera.

Dengue continued to prevail to a very moderate extent, but only at the very opening of the year, and soon died out; and small-pox has been only moderately prevalent.

Meteorology.—The meteorological features are mainly marked by a deficient rainfall, as will be seen by the meteorological returns further on, where they are contrasted with the means of the previous three years. Meteorology.

Deficient outturn of crops.—This deficiency of rain affected materially the outturn of the crops; and, although the ruling prices of food grains did not materially rise within the year under report at the time I write, there is every prospect of enhanced prices. In the Southern Districts of the Presidency (the great rice-growing districts) prices are now rising, and apprehension entertained of scarcity, though actual famine, such as exists in certain parts of Bengal, does not threaten. Deficient outturn of crops.

As above noted, there is no history of cholera to be written in connexion with 1873, so that the "map," which has hitherto accompanied these reports, has not been prepared.

Vital Statistics of Civil Population.

Before writing upon the statistics of disease and mortality of the troops, the health of the civil population, as illustrated by the vital statistical returns which reach this office, may be briefly given. I may remark that birth and death registration, both in districts and cantonments, is daily acquiring greater accuracy, especially as relates to the registration of births. I do not think, however, that we can yet fix, even approximately, the birth and death rate amongst the civil native community. But I apprehend that the latter will be found to be much higher than is usually accepted, or still returned at. Neither can the figures about to be adduced be accepted as illustrating the comparative health of the several years, since the element above noted—improvement in registration itself—must be taken into account.

Population by Census of 1871.—The population of the four districts included in my range of superintendence is, according to the last census (1871), as follows :— Population by Census of 1871.

Province of Mysore		5,055,412
Do. of Coorg		168,312
Ceded Districts of	Bellary	1,668,013
	Cuddapah	1,360,999
	Kurnool	961,225
	Total ...	9,213,961

The deaths from all causes are returned as follows :—

		No.	Per Mille Ratio to Population.
Province of Mysore...		53,340	10·55
Do. of Coorg		3,563	21·17
Ceded Districts of	Bellary	29,799	17·86
	Cuddapah	19,834	14·57
	Kurnool	16,032	16·68

In order to compare the health-condition of the year under report with those which have preceded it since I assumed charge (the years 1870, 1871, and 1872), it is necessary to correct the mortuary ratios formerly given by the population as determined by the last census, which shows that the population is much in excess of what was formerly accepted.

Thus corrected, the mortuary ratios for the several provinces and districts for the four years (1870 to 1873) are as follow :—

Years.	Mysore.	Coorg.	Bellary.	Cuddapah.	Kurnool.
1870	*	*	12·25	13·30	15·46
1871	11·52	19·20	13·39	15·17	13·88
1872	11·47	20·02	17·53	13·22	17·09
1873	10·55	21·17	17·86	14·57	16·68

* Returns for half-year only.

The actual number of deaths registered by all causes, as compared with previous years, are as follows :—

—	1870.	1871.	1872.	1873.
Mysore	*	58,218	57,790	53,340
Coorg	*	3,231	3,371	3,563
Bellary	20,442	22,333	29,241	29,799
Cuddapah	18,105	20,642	17,991	19,834
Kurnool	14,883	13,242	16,423	16,032

It is difficult to say how far these differences depend upon fluctuations in health or improvement in registration. In Mysore the deaths are considerably fewer in the year under report than in either of the previous years. In Coorg they are slightly more numerous. In the Bellary District there is a steady increase through each succeeding year. In Cuddapah it would appear that the public health has not been so good in the year under report as in the year immediately preceding, while in Kurnool it is much the same.

Deaths by specific diseases during the year under report are as follow :—

—	Cholera.	Small-pox.	Fevers.	Bowel-complaints.
Mysore	12	3,052	28,854	5,785
Coorg	...	525	2,236	348
Bellary	...	1,580	9,669	2,264
Cuddapah	...	1,171	13,802	740
Kurnool	...	758	12,188	503

Cholera.

Cholera.—The only deaths by cholera then are recorded against the Mysore Province. Not a single death occurred in the Ceded Districts, and such an immunity has not been experienced for many years.

Small-pox.

Small-pox has prevailed to a greater extent in Mysore than in any other district under my charge. The total number of deaths recorded throughout the provinces of Mysore and Coorg and the Ceded Districts amount to 7,086.

	1871.	1872.
Mysore ...	1,494	4,532
Coorg ...	25	307
Ceded Dists.	2,439	4,253
Total ...	3,958	9,092

In 1871 they numbered only 3,958 and in 1872, 9,092, showing a declension of the epidemic in the year under report as compared with the year immediately preceding.

Fevers.

Fevers.—The deaths from fevers number 35,659 in the three districts of the Ceded Districts and 31,090 in Mysore and Coorg, total 66,749. In 1871 they were 67,008 and in 1872, 66,079, so that the agencies leading to mortality under this class of diseases were nearly equally rife in each year.

	1871.	1872.
Mysore ...	32,797	31,140
Coorg ...	2,300	2,215
Ceded Dists.	31,911	32,724
Total ...	67,008	66,079

Bowel-complaints.

Bowel-complaints.—Nine thousand six hundred and forty deaths are recorded against bowel-complaints. In 1871 the deaths numbered 9,033 and in 1872 9,858. The mortality, then, has been rather less in the year under report than in that immediately preceding.

	1871.	1872.
Mysore ...	5,798	6,284
Coorg ...	438	363
Ceded Dists.	2,797	3,211
Total ...	9,033	9,858

I do not think it necessary to go further into this subject, as it is the Sanitary Commissioner's province to report fully upon the vital statistics of the general population. I have adduced sufficient to show that the year under report, as relates to my charge, has been favorable to the general health of the community, that it has been exceptionably free from cholera, and that other epidemic diseases have not prevailed to an unusual extent.

Meteorology.

The following tables exhibit the general meteorological results as rendered at the Observatory of Bangalore as compared with previous years. The observations are duly corrected and reduced :—

* Returns for half-year only available.

——	1870.	1871.	1872.	1873.
Mean Barometric Pressure	26·910	26·927	26·911	26·929
Do. Temperature of Air	72°·8	72°·9	73°·8	72°·5
Do. do. Wet Bulb	66·2	66·2	66·2	64·2
Do. Observed Extremes of Temperature. { Maximum	84·2	84·2	82·8	84·1
{ Minimum	64·5	64·7	64·3	64·2
Do. Humidity (Saturation 100)	73	72	72·6	70
Do. Maximum Solar Heat in Vacuo	133·2	132·	128·8	134·1
Do. Minimum on Grass	61·5	61·9	62·1	61·3
Do. Depth of Rain in Inches	39·255	29·058	39·911	29·111
Number of Days on which Rain fell	121	107	92	80

The main feature to be noted is the deficient rainfall, 29·111 inches against 39·911 the preceding year. The average of the station is taken usually at 35 inches. The deficiency of rain applies especially to the third quarter of the year, in which the rainfall was 13·263 inches against 22·485 in the preceding year.

The north-east monsoon was also deficient. Rain fell only on 80 days against 121, 107, and 92 in the three preceding years. In other respects the meteorological features contrast unfavorably with the previous year. The mean maximum temperature in the shade is 1°·3 higher, the mean maximum solar heat in vacuo 5°·3 higher, and the mean humidity 2°·6 lower.

The following table shows the mean results for each quarter of the year under report :—

Quarters.	Barometer reduced to 32° Fahrenheit.	Thermometer. Daily Means. Dry.	Thermometer. Daily Means. Wet.	Thermometer. Observed Extremes. Max.	Thermometer. Observed Extremes. Min.	Dew-point.	Humidity.	Sun's Rays in Vacuo.	Minimum on Grass.	Wind. Velocity.	Rain.	Number of Rainy Days.	Remarks.
											Inches.		
1st	26·978	70·5	60·7	83·5	59·6	52·5	56	134·0	55·4	123	0·4 25	1	
2nd ...	26·873	77·1	66·0	90·3	68·4	Reported by Mr. Pogson.	60	139·7	66·4	*	2·9 15	18	*Instrument out of order.
3rd	26·886	72·5	66·3	83·1	66·1		91	130·6	64·4	*	13·263	35	
4th	26·977	69·8	64·0	79·5	62·8		74	132·2	60·0	122	12·508	26	
Means and Sums.	26·929	72·5	64·2	84·1	64·2	...	70	134·1	61·3	122	29·111	80	

The returns from Bellary are the only ones I receive as representing the meteorological conditions of the Ceded Districts, and they are unreduced and uncorrected. Such as they are, I give them as compared with the observations recorded last year.

	1872.	1873.
Mean barometric pressure (inches)	28·505	28·510
Do. temperature of air	85°·2	84·8
Do. do. wet bulb	69°·3	67·6
Do. observed extremes { Maximum	95°·2	96·4
{ Minimum	70°·4	70·0
Do. daily range	24·8	26·4
Do. minimum on grass	65·6	No observation.
Do. velocity of wind (Miles)	132·8	141
Depth of rain in inches	15·97	20·48

In Bellary itself then the rainfall was greater than in 1872, but the remark already made, that the fall was deficient in the Ceded Districts generally, is borne out by the remarks made in all the annual reports received in this office.

Sanitary.

In previous reports the general sanitary conditions of cantonments and lines of native regiments were fully reported upon.

In every cantonment steady but necessarily somewhat slow progress, owing to native prejudice, is being made in all the more important conditions tending to a purer atmosphere, a better conserved water-supply, and a cleaner surface and sub-soil. And with this admission of improvement, and the acknowledgment of the ready adoption by Cantonment and Municipal Boards of suggestions, and, as far as means admit, of measures calculated to improve these conditions so essential to the maintenance of a high standard of public health, it is somewhat invidious to find any faults.

Main requirements of hutting lines of native troops.—The main question as regards the lines of native troops is drainage, sewerage of huts, water-supply, and the provision of better dwellings. But even in this direction a commencement has been made. At Bangalore the

Main requirements of hutting lines of native troops.

Sappers and Miners have long been hutted in new lines with huts or houses of superior construction, broad streets, and an efficient system of drainage by V-section stone-drains, combining in one drainage proper and sewerage.

New lines being built for one of the two native regiments at Bangalore.

New lines being built for one of the two native regiments at Bangalore.—New lines of the same description are under construction, and appear almost ready for occupation for one of the two native regiments located at this station.

It is to be hoped and anticipated that this is a recognition of the necessity for gradually hutting all corps upon the same system.

At Mercara also new lines with dwellings of a better construction, have been provided for one wing of the regiment there stationed, and the houses and lines for the other wing are to be constructed on the same plan. At other stations in my range every effort is made by regimental authorities to remedy the defects in construction of huts and drainage. By a system of daily removal of night soil from public and private latrines, and by constant scavengering of the streets, lines are kept very clean; but there still remains, in all instances where impervious drains are not provided, the great evil of bad sewerage, and the constant fouling of the sub-soil from the discharge of sewage from the backyards of huts, which sinks into the soil of the gutters into which it is discharged.

Drainage by V-section open impervious drains is then still the great want of the lines of native troops, and till they are built on the plan now being adopted for one of the two regiments at Bangalore, the troops cannot be said to live under conditions favorable to a normal standard of health.

In regard to the sanitary condition of individual stations a few lines may be written.

Bangalore.

Bangalore.—At Bangalore the cantonment is kept remarkably clean, and perhaps there is no town in Southern India which is better cared for.

Drainage and general conservancy.

Drainage and general conservancy.—The drainage by V-section stone-drains has been largely extended. The village of Ulsoor, which has attracted so much attention from the prevalence of typhoid fever in the lines of the Royal Artillery which are close to it, has largely participated in these improvements.

Water-supply.

Water-supply.—Attention has also been paid to conservancy of the main sources of water-supply, whether from wells or tanks.

A good water-supply for the native population is still a great desideratum, and I understand that the Government of India have ordered that the subject be taken up upon one or other of the schemes which have been proposed. As regards the water-supply for the European troops, the works at Ulsoor have been out of order. The single filter failed for a long period to fulfil its functions, and it became necessary to throw it out of use, in order to clean and re-pack the filter bed. The second filter has never been made to work I understand, as it is not water-tight. The Dhobies' Wells have consequently been mainly resorted to during the past year for the supply of the troops.

In my last year's report I gave a sketch of the result of analysis of the waters of the station generally, and stated that the wells situated in the great centres of the population were all largely impregnated with sewage impurities, and that the majority of those used by the native troops were unfit for use for domestic purposes. Till a system of water service is introduced, the use of these wells cannot be interdicted.

The most difficult question in conservancy as regards this and all native towns is the custom the people have adopted from all time of accommodating their cattle in their dwellings, and of storing in pits all the ordure, human and animal, which accumulates upon their premises. But even this custom the Municipal Board is gradually undermining, though it is very uphill work, so thoroughly is the system a part and parcel of the domestic life of the people.

Bellary.

Bellary.—At Bellary considerable improvements have been carried out during the year, especially in the matter of drainage. On my report to the Officer Commanding, and upon his representation to the Municipal Board, a sum of money was voted for the better drainage of the native town. Owing to an abundant rainfall, and the completion of the channel from the Alipore tank, the water-supply has been abundant, and the sources of supply to the troops and civil population have been guarded against pollution as far as possible. General conservancy, as refers to the scavengering of the streets, provision of public latrines, and removal of night-soil from the same and from private privies, and of town sweepings beyond the limits of the Municipality, has been carefully and efficiently attended to. Indeed, in common with all towns and cantonments, the station has derived very great benefit from the introduction of the Towns' Improvement Act.

French Rocks and Mercara.

French Rocks and Mercara.—At the minor stations (the French Rocks and Mercara) general conservancy has been very satisfactorily enforced. In both impervious drains are much needed in the regimental lines, and in the latter the completion of the water-supply scheme, referred to in former reports, and which is still *in statu quo*, is as pecial desideratum.

Barracks and guard-rooms.

Barracks and guard-rooms.—Places-of-arms are all clean. Their attached guard-rooms generally do not afford sufficient space for the guard, as has been explained in former reports, but medical officers do not attach any material importance to this fact. They are all kept clean.

Prison cells.—Some of the solitary cells are of the old pattern, and are small, but generally they afford sufficient space, and are sufficiently well suited to their use. They are all clean. Prison cells.

Food-supply.—There has been no deficiency or any rise in prices of the ordinary food-supply of the native soldier as obtainable in the bazaars. Vegetables are scarce, and the supply precarious at Bellary and Mercara. At every station Government has had to pay compensation for dearness of rice, but this has been the case for years. Food-supply.

Clothing.—The clothing has been suitable. Clothing.

Duty and drill.—The duties are in no instance adduced as affecting the health of the troops. The guard duties at Bangalore are at times heavy, and the nights in bed have fallen below two in bed to one on duty. Duty and drill.

Vaccination.—Every attention has been paid to this important subject during the year. The results will be shown in another part of this report. Vaccination.

Hospitals.—The sanitary condition of hospitals has been everything that can be desired. The accommodation is precisely as described in former reports, in which it has been shown that at Bangalore it is generally deficient, none of the hospitals affording the accommodation laid down by the Government of India for native troops. It has consequently been occasionally necessary to supplement the accommodation by tents. The hospital of the 4th Regiment Light Cavalry at Bellary was found to be so unsafe that it was razed to the ground, and the sick are now treated in the building assigned to the sick of the followers (horse-keepers and grass-cutters) who are now sent, if requiring hospital treatment, to the Garrison Hospital. Hospitals.

Latrines.—All latrines, whether the public latrines of regiments or those attached to hospitals and guard-rooms, have been kept in a very satisfactory condition. Latrines.

Ablution and bath rooms.—All hospitals have their bath-rooms, except that of the 4th Regiment Light Cavalry at Bellary. But native sick, from prejudices against bathing while sick, are with difficulty made to use them. But medical officers report that the orders, that every man not specially excused should be made to wash the entire body at least once a week, are enforced. Ablution and bath rooms.

Hospital clothing.—The clothing attached to hospitals has been sufficient for the wants of the sick, and at my inspection I have always found it clean and in good order. Hospital clothing.

General conservancy of hospitals has been well attended to. The buildings have been white-washed and kept clean. The wards always look tidy. Cots properly arranged in accordance with the regulations as to superficial space, and the bedding and clothing clean. The stores of medicines have been properly preserved and neatly arranged, and instruments properly cared for. General conservancy.

Indeed, the administration of hospitals by executive medical officers has given me every satisfaction.

Statistical.

The following movements have taken place amongst the native troops serving in the two army divisions under my superintendence during the year:—

Movements of troops.—The E and F Companies of 39th Regiment Native Infantry left Bangalore for Palaveram on the 14th March 1873. The head-quarters of 8th Regiment Native Infantry left Mercara for Seetabuldee on the 7th November 1873. The right wing of 16th Regiment Native Infantry left Bellary for Jubbulpore on the 8th November 1873, the left wing following on the 22nd. The 4th Regiment Light Cavalry marched from Bellary for the Camp of Exercise at Bangalore on the 10th December, and was on the march at the close of the year. The 30th Regiment Native Infantry also left the French Rocks for the same Camp on the 28th December, and was on the march at the close of the year. The head-quarters and left wing of 21st Regiment Native Infantry arrived at Bellary on the 29th November, and the right wing on 21st December from Jubbulpore. Some change of companies of the Sappers and Miners also occurred. Movements of troops.

Mean annual strength as derived from the Medical Returns.—The mean annual strength derived from the Medical Returns is as follows:— Mean annual strength as derived from the Medical Returns.

European Commissioned and Warrant Officers—Staff and Regimental ...	176
Native Commissioned Officers	108
Non-commissioned rank and file	4,870

(This strength is derived from the Weekly Returns, and will not agree with that shown in Sanitary Return W. O. F. 517, nor in W. O. F. 298, since the former is calculated upon the strength as it stood on the 1st of each month, and the latter includes the entire strength of corps whether serving in the divisions under my superintendence or in other army divisions.) The strength, then, of Non-commissioned Officers and men is 139 in excess of that of last year.

Admissions and deaths.

Admissions and deaths.—The total admissions into hospitals in both army divisions were 3,709. The deaths were 43—35 in and 8 out of hospital. One hundred and twenty-four were pensioned and 16 discharged on account of disease, while the average daily sick was 121·75.

The figures give the following results per mille of strength :—

Admitted sick				781·68
Died ...	In hospital ...	7·20	... ...	8·85
	Out of do. ...	1·65		
Invalided...	By pension ...	25·51	... ...	28·80
	By discharge ...	3·29		
Total decrement from all causes				37·65
Average daily sick				25·05

The two army divisions give the following results as compared with each other :—

TABLE I., *showing the Strength, Admissions, Deaths, Invaliding, and Daily Sick with the Ratios per Mille in each Division.*

Divisions.	Strength.	Admitted.	Died.		Invalided.		Average Daily Sick.
			In.	Out.	Pensioned.	Discharged.	
Mysore Division	3288·48	3,050	30	6	82	14	89·81
Ceded Districts...	1571·33	749	5	2	42	2	31·94
Ratios per 1,000 *of Average Strength.*							
Mysore Division	...	927·48	9·12	1·82	24·94	4·26	27·31
Ceded Districts...	...	476·67	3·18	1·27	26·62	1·27	20·33

It will be noted that, as in former years, the ratios of sickness and mortality are much higher in the Mysore Division than in the Ceded Districts, although the losses by invaliding closely approximate.

The admission-rate is 450·81 per mille lower in the Ceded Districts (Bellary) than in the Mysore Division. The difference in the death-rate is as much as 6·49 per mille, and the average daily sick is 6·98 per mille less in Bellary.

The following table gives the same information for the several regiments located within the limits of both commands, distinguishing "stational" from "marching" statistics :—

TABLE No. II.

Mysore Division.

Stations.	Regiments.	No. of Weeks resident.	Average Annual Strength.	Admitted into Hospital.	Died. In.	Died. Out.	Invalided. By Pension.	Invalided. By Discharge.	Average Daily Sick.	Ratio per 1,000 of Strength. Admitted.	Died. In.	Died. Out.	Invalided.	Average Daily Sick.
Bangalore.	Garrison Details.	52	20·44	8	1	1	..	...	0·38	391·39	48·92	48·92	...	18·59
	Hd. Qrs., Sappers and Miners ...	52	676·30	674	3	1	17	1	16·87	996·60	4·44	1·50	26·62	24·94
	23rd Regiment L. I.	52	648·19	472	9	2	19	4	14·36	728·18	13·88	3·09	35·48	22·15
	36th Regt. N.I.	52	638·23	495	6	...	23	3	21·62	775·58	9·40	...	40·74	33·87
	39th do. do.	11	86·67	87	...	...	...	...	2·51	1003·81	...	...	...	28·96
Total at Bangalore ...		...	2069·83	1,736	19	4	59	8	55·74	838·72	9·18	1·93	32·37	26·93
Mysore ...	Detachment 30th Regt. N.I. ...	52	63·21	79	...	...	...	...	1·54	1249·80	...	...	...	26·36
French Rocks	30th Regt. N.I.	52	566·38	516	7	...	...	...	10·31	911·05	12·36	...	...	18·20
Mercara ...	8th Regt. N.I. ...	47	527·21	610	4	1	23	6	19·83	1157·03	7·59	1·89	55·00	37·59
	Detachment, 8th Regt. N.I. ...	8	21·90	31	..	...	...	...	1·36	1415·53	...	...	...	62·10

Marching within limits of Division.

Stations.	Regiments.	No. of Weeks resident.	Average Annual Strength.	Admitted into Hospital.	Died. In.	Died. Out.	Invalided. By Pension.	Invalided. By Discharge.	Average Daily Sick.	Ratio per 1,000 of Strength. Admitted.	Died. In.	Died. Out.	Invalided.	Average Daily Sick.
En route to Seetabuldee.	8th Regt N.I. ...	3	27·23	74	...	...	...	...	0·85	2717·59	...	...	...	31·22
En route to Camp of Exercise ...	30th do. do. ...	1	12·69	4	...	...	...	...	0·18	315·21	...	...	...	14·20
On sick leave at Colar ..	4th do. L.C. ...	...	...	...	...	1	...	...	...	...	...	...	...	...

Ceded Districts.

Bellary ...	Garrison Details.	52	12·98	7	...	1	...	...	0·36	539·29	...	77·04	...	27·74
	4th Regt. L.C.	52	272·75	132	...	...	15	...	4·51	483·96	...	...	55·00	16·54
	4th do. N.I.	52	649·92	311	4	...	7	1	14·20	478·52	6·89	...	12·30	21·85
	16th do. N.I.	52	570·74	255	1	1	20	1	11·39	446·79	1·75	1·75	36·27	19·96
	21st do. N.I.	4	34·25	27	...	...	...	...	1·15	788·32	...	...	...	33·58
	Total at Bellary.	...	1540·64	732	5	2	42	2	31·61	475·13	3·25	1·30	28·56	20·52

Marching within limits of Division.

En route to Seetabuldee, Camp Ghooty.	8th Regt. N.I. ...	1	9·08	7	...	...	...	...	0·17	770·93	...	...	...	18·72
En route to Jubbulpore, Camp Ghooty.	16th do. N.I....	1	6·08	7	...	...	...	...	0·10	1151·31	...	...	...	16·45
En route to Camp of Exercise.	4th do. L.C....	3	15·46	3	...	...	...	...	0·02	194·05	...	...	...	1·29

The table illustrates, in the instance of individual regiments serving in the two commands as in the mass, the remark made above, and establishes, as has been advanced in former reports, the greater salubrity of the climate of the Ceded Districts as refers to the health of the native troops.

The next table exhibits the comparative health statistics of the native force of the two divisions for the past four years.

TABLE No. III.

Divisions.	Years.	Ratios per 1,000. Admitted.	Died. In.	Died. Out.	Invalided.	Average Daily Sick.
Mysore Division	1870	734·4	10·3	0·93	41·0	30·4
	1871	779·33	10·81	0·95	41·01	27·66
	1872	874·08	6·73	1·92	28·84	28·83
	1873	927·48	9·12	1·82	29·20	27·31
Ceded Districts	1870	459·24	6·11	...	20·53	16·19
	1871	527·47	6·94	...	13·88	19·15
	1872	519·37	8·75	0·63	38·13	19·38
	1873	476·67	3·18	1·27	27·89	20·33

It will be noted that the sick admission-rate to strength shows a steady increase in the Mysore Division from 1870 to the year under report; that the death-rate is highest in 1871 and lowest in 1872, the mean of the four years both in and out of hospital being 10·645, and the extremes 11·76 and 8·65.

In the Ceded Districts the sick admission ratios are much more moderate, and do not show the same tendency to rise in each succeeding year, while the mean death-rate of the four years is 6·72, or 3·92 per mille less than in the Mysore Division. The mean of invaliding in Mysore is 35·01 per mille, while in the Ceded Districts it is 25·10, or 10 per mille lower. The mean average constantly sick for the period is in Mysore 28·55 per mille and in the Ceded Districts 18·76; difference in favor of Bellary 9·79 per mille.

The year under report has not been so favorable a one as regards the troops serving in the Mysore Division, the ratios representing sickness and mortality being higher than those in 1872. The reverse is noted as regards the Ceded Districts, where the ratios are all considerably lower than apply to the previous year (1872).

The influence of seasons upon health is given in the next table.

TABLE No. IV.

Quarters ending	Average Strength inclusive of Garrison Details.	Admitted.	Died. In.	Died. Out.	Average Daily Sick.	Ratios per 1,000. Admitted.	Ratios per 1,000. Died in Hospital.	Ratios per 1,000. Average Daily Sick.
Mysore Division.								
31st March	3644	726	6	3	96·50	199·23	1·65	26·35
30th June	3157	1,183	15	1	114·72	374·72	4·75	36·11
30th September	3215·54	537	6	1	79·62	167·00	1·87	24·76
31st December...	3137·38	604	3	1	68·40	192·52	0·96	21·80
Ceded Districts.								
31st March	1634·53	221	1	...	41·31	135·21	0·61	25·08
30th June	1552·85	141	2	2	27·96	90·80	1·29	16·09
30th September	1588·77	158	...	...	25·38	99·45	...	15·97
31st December...	1509·15	229	2	...	33·10	151·74	1·33	21·93

No very profitable analysis can be made of this statement. The second quarter in the Mysore Division gives the highest rates both of admissions and deaths. As regards deaths the same was noted in 1871; four out of the seven deaths at Bellary also occurred in the second quarter, but the admission-rate for that quarter is the lowest of the four quarters.

The next Table, No. V., illustrates sickness and mortality by the most important diseases at each station in the two army divisions.

TABLE No. V.

Divisions	Mysore Division.																Ceded Districts.			
Stations	Bangalore. Strength 2069·83.				French Rocks. Strength 566·38.				Mercara. Strength 549·11.				Mysore. Strength 63·21.				Bellary. Strength 1540·64.			
Diseases.	A.	D.	Ratio per 1,000. A.	Ratio per 1,000. D.	A.	D.	Ratio per 1,000. A.	Ratio per 1,000. D.	A.	D.	Ratio per 1,000. A.	Ratio per 1,000. D.	A.	D.	Ratio per 1,000. A.	Ratio per 1,000. D.	A.	D.	Ratio per 1,000. A.	Ratio per 1,000. D.
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Small-pox	17	..	8·21	...	5	...	8·83	...	2	...	3·64	...	...	...	...	...	...	...	...	...
Fevers (Dengue ...	343	1	165·71	0·48	89	...	157·14	...	...	...	...	...	40	...	632·81	...	21	...	13·63	...
Fevers (Intermittent..	223	3	107·74	1·45	144	1	254·25	1·77	189	...	344·19	...	21	...	332·23	...	82	..	53·22	...
Fevers (Remittent ...	8	2	3·87	0·96	...	...	...	...	...	...	...	...	...	...	...	...	2	1	1·30	0·65
Fevers (Continued ...	3	1	1·45	0·48	39	..	68·86	...	...	...	...	...	1	..	15·82	...	...	...	...	...
Fevers (Enteric ...	...	...	...	...	1	1	1·77	1·77	...	...	...	...	...	...	...	...	1	...	0·65	...
Dysentery	29	2	14·01	0·96	2	1	3·53	1·77	36	1	65·56	1·79	...	...	...	...	23	...	14·93	...
Diarrhœa	29	...	14·01	...	14	1	24·72	1·77	69	...	125·66	...	...	...	...	...	22	...	14·28	...
Hepatitis	7	...	3·38	...	...	...	...	...	1	...	1·79	...	...	...	...	...	2	1	1·30	0·65
Pneumonia	12	3	5·80	1·45	...	...	...	...	4	1	7·28	1·79	...	...	...	...	3	...	1·95	...
Pleuritis	2	...	0·96	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other respiratory ...	35	3	16·91	1·45	9	...	15·89	...	31	...	56·45	...	2	...	31·64	...	20	...	12·98	...
Phthisis pulmonalis ...	8	2	3·87	0·96	1	1	1·77	1·77	...	...	...	...	...	...	...	...	5	1	3·25	0·65
Dropsies	3	...	1·45	...	1	...	1·77	...	8	...	14·57	...	1	...	15·82	...	2	...	1·30	...
Venereal	32	...	15·46	...	2	...	3·53	...	7	...	12·75	...	2	...	31·64	...	16	...	10·39	...
Eye diseases ...	93	..	44·93	...	19	...	33·55	...	4	...	7·28	...	...	...	...	...	37	...	24·02	...
Abscesses	50	...	24·16	...	8	...	14·12	...	18	...	32·78	...	...	...	...	...	20	...	12·98	...
Ulcers	48	...	23·19	...	6	...	10·59	...	22	...	40·06	...	...	...	...	...	29	...	18·82	...
Wounds and accidents ...	103	1	49·76	0·48	22	...	38·84	...	70	...	127·48	...	1	...	15·82	...	65	...	42·19	...
Rheumatism ...	84	..	40·58	...	18	...	31·78	...	31	...	56·45	...	...	...	...	...	61	..	39·59	...
Other diseases ...	607	1	293·26	0·48	133	2	234·82	3·53	149	2	271·35	3·64	11	...	174·02	...	321	2	208·35	1·30
Total ...	1,736	19	838·72	9·18	516	7	911·05	12·36	641	4	1167·34	7·28	79	...	1249·80	...	732	5	475·13	3·25

It will be seen that at Bangalore, out of an average strength of 2063·83, there were 1,736 admissions and 19 deaths in hospital. At the French Rocks the strength is 566·38, with 516 admissions and 7 deaths. Mercara affords a strength of 549·11, with 641 admissions and 4 deaths. Mysore (a detachment only), 79 admissions out of a strength of 63·21 without a death. Bellary, with a mean strength of 1540·64, gives 732 admissions and five deaths.

Arranged in order of ratio of admissions to strength, the stations stand thus:—

Admissions.

Stations.	Ratio per Mille of Strength.
Mysore	1249·8
Mercara	1167·34
French Rocks	911·05
Bangalore	838·72
Bellary	475·13

If the death-ratios be accepted as indices of salubrity of stations, they stand thus:—

Deaths.

Stations.	Ratio per Mille of Strength.
French Rocks	12·36
Bangalore	9·18
Mercara	7·28
Bellary	3·25
Mysore	Nil.

Mysore is garrisoned only by a small detachment; and, as the men are generally selected for this duty, the very high sick-rate is notable. It resulted from the prevalence of dengue.

In regard to the prevalence of disease at the different stations, it is satisfactory to note that not a single case of cholera presented itself.

Small-pox has been rather prevalent as evidenced by 24 admissions, of which 17 occurred at Bangalore, 5 at the French Rocks, and 2 at Mercara. All were "modified" cases.

Dengue 493 cases, 343 of which occurred at Bangalore, 89 at the French Rocks, 40 at Mysore, and 21 at Bellary. At Mysore nearly the whole detachment was down.

One death is recorded against this disease. It occurred in the Sappers and Miners at Bangalore.

Intermittent fevers numbered 659, of which 223, or 107·74 per mille of strength, occurred at Bangalore; 144, or 254·2 per mille, at French Rocks; 189, or 344·19 per mille of strength, at Mercara; 21, or 332·2 per mille, at Mysore; and 82, or 53·22 only per mille, at Bellary. It is the absence of malarious fevers at the latter station that accounts for its salubrity as illustrated by the ratio of sick admissions to strength. Fevers of remittent type contribute 10 admissions (8 at Bangalore and 2 at Bellary) with 3 deaths, of which 2 are recorded at Bangalore and 1 at Bellary. Under fevers of continued type, including enteric fever, there are 45 admissions with 2 deaths. Of these admissions, 2 are returned as "enteric fever"—1 at the French Rocks and 1 at Bellary. The case at the French Rocks died, and, as far as I could ascertain by the record of the case (there was no *post-mortem*), the symptoms appeared to justify the diagnosis. The admissions by bowel-complaints (dysentery and diarrhœa) number 224 with 5 deaths. Strength for strength Mercara contributes the larger number of cases, the admissions by dysentery equalling 65·56 per mille of strength, and those by diarrhœa 125·66. This is doubtless attributable to the damp and cold of the climate, and partly probably to the difficulty sepoys experience in procuring a sufficiency of vegetables at that station.

Pneumonia gives 19 admissions with 4 deaths. Some of the cases I witnessed under treatment at Bangalore were very acute. It will be noted that of the 12 cases recorded against that station 3 died. I do not think it necessary to comment further upon this table.

The next table (No. VI.) shows the rates per mille which the most important diseases and deaths thereby bear to total admissions and deaths by disease in each army division.

TABLE No. VI.

Divisions	Mysore Division.		Ceded Districts.	
	Admissions, ,050.	Deaths, 30.	Admissions, 749.	Deaths, 5.
Diseases.	Ratio per Mille to all Admissions by Diseases.	Ratio per Mille to all Admissions. by Deaths.	Ratio per Mille to all Admissions. by Diseases.	Ratio per Mille to all Admissions by Deaths.
Cholera ...	...	...	...	...
Small-pox	7·87	...	...	...
Dengue ...	154·75	33·33	28·04	...
Fevers, intermittent	297·38	100·00	117·49	...
Do. remittent	2·62	66·67	2·68	200·00
Do. continued	13·70	33·33	...	...
Do. enteric ...	0·33	33·33	1·34	...
Dysentery	22·30	133·33	29·38	...
Diarrhœa	38·03	33·33	29·38	...
Hepatitis	2·29	...	2·68	200·00
Respiratory diseases, including pneumonia, bronchitis, &c.	31·48	233·33	30·72	...
Phthisis pulmonalis	2·95	100·00	6·68	200·00
Dropsies	4·06	...	2·68	...
Venereal	14·69	...	21·36	...
Eye diseases	38·03	...	52·07	...
Abscesses and ulcers	51·48	...	66·75	...
Wounds and injuries	71·80	33·33	88·12	...
Rheumatism	44·26	...	81·44	...
Other diseases ...	301·64	200·00	439·25	400·00

This table speaks for itself. The relative prevalence of disease in the army divisions is noteworthy. Thus dengue, which contributed 154·75 cases in every 1,000 of all admissions by disease in Mysore, only contributed 28·04 per mille in the Ceded Districts. Intermittent fevers were far more prevalent in Mysore than in the Ceded Districts, the rates per mille of all admissions by disease being represented by 297·38 and 117·49, respectively. Fevers of the remittent type were equally prevalent in the two divisions, but fevers of the continued type occurred only in Mysore. Enteric fever occurred in both divisions, but a single instance only in each. Bowel-complaints were also equally prevalent, but mortality was high in the Mysore Division and nil in the Ceded Districts. Rheumatic affections were more prevalent in the Ceded Districts, that is, at the hot and dry station of Bellary than in the colder and damper stations of the Mysore Division.

TABLE No. VII.

Diseases.	Mysore Division.	Ceded Districts.
Enteric fever ...	1	...
Simple continued fever	1	...
Intermittent fever	4	...
Remittent do.	2	1
Dengue	1	...
Phthisis pulmonalis	3	1
Beri-beri	1	1
Paralysis	1	...
Epilepsy	1	...
Valve disease of heart	1	...
Hypertrophy	...	1
Bronchitis	1	...
Asthma	2	...
Pneumonia	4	...
Dysentery	4	...
Diarrhœa	1	...
Hepatitis	...	1
Intestinal obstruction	1	...
Burns and scalds	1	...
Total ...	30	5

Mortality.

Mortality.—The specific diseases which contributed to mortality are given in the marginal table, No. VII., for each army division. The immunity of the Ceded Districts from deaths by zymotic diseases is again apparent, the only death in this class being recorded against remittent fever. Diseases of the respiratory system were fatal only in the Mysore Division, but phthisis was most prevalent and most fatal in the Ceded Districts.

Invaliding.

Invaliding.—The following statement shows the numbers invalided in the two commands with the diseases by which invaliding occurred and the ratios per mille to all invalided.

In the two divisions the numbers are—

	Invalided.	Ratio per Mille to Mean Annual Strength.
Mysore Division	96	29·19
Ceded Districts	44	28·0

Of the 140 invalids, 34·2 per cent. were invalided from old age, or "worn out" from length of service under the head of "General Debility." I have no information in regard to men got rid of by Committees of Appeal against the decisions of Medical Boards.

TABLE No. VIII.

Diseases.	Pensioned or Discharged.			Ratio per Mille to all Invalided.		
	Mysore Division.	Ceded Districts.	Total.	Mysore Division, 96.	Ceded Districts, 44.	Total 140.
Ague	1	2	3	10·42	45·45	21·43
Rheumatism, acute	3	...	3	31·25	...	21·43
Do. chronic	4	6	10	41·66	136·36	71·40
Syphilis, secondary	6	...	6	62·50	...	42·85
Scrofula	1	1	2	10·42	22·73	14·29
Phthisis pulmonalis	2	3	5	20·83	68·18	35·71
Anæmia	1	...	1	10·42	...	7·14
Beri-beri	1	1	2	10·42	22·73	14·29
Leprosy	6	1	7	62·50	22·73	49·99
Neuralgia	1	...	1	10·42	...	7·14
Dementia	1	5	6	10·42	113·64	42·85
Locomotor ataxy	1	...	1	10·42	...	7·14
Anæsthæsia	1	...	1	10·42	...	7·14
Imbecility	1	...	1	10·42	...	7·14
Cataract	2	...	2	20·83	...	14·29
Blindness of right eye	...	1	1	...	22·73	7·14
Bad sight from injury	1	...	1	10·42	...	7·14
Imperfect vision and general debility	...	1	1	...	22·73	7·14
Deafness	3	...	3	31·25	...	21·43
Heart disease	7	1	8	72·92	22·73	57·14
Varicose veins	1	...	1	10·42	...	7·14
Asthma	...	1	1	...	22·73	7·14
Pleurisy	1	...	1	10·42	...	7·14
Hernia, inguinalis	3	1	4	31·25	22·73	28·57
Hæmorrhoids	1	...	1	10·42	...	7·14
Hepatitis	1	...	1	10·42	...	7·14
Tumor of abdomen	...	1	1	...	22·73	7·14
Stricture of urethra	1	...	1	10·42	...	7·14
Orchitis	...	1	1	...	22·73	7·14
Enlarged testicle	...	1	1	...	22·73	7·14
Synovitis	1	...	1	10·42	...	7·14
Muscular atrophy	1	...	1	10·42	...	7·14
Contraction of finger	1	...	1	10·42	...	7·14
Ulcer	3	...	3	31·25	...	21·43
General debility	20	16	36	208·30	363·64	257·14
Debility caused by bhang-smoking	1	...	1	10·42	...	7·14
Fracture	...	1	1	...	22·73	7·14
Old age	12	...	12	125·00	...	85·71
Brought forward by Commanding Officer.	5	...	5	52·08	...	35·71
Bad character	1	...	1	10·42	...	7·14
Total	96	44	140			

Mortality according to classes.—The following incomplete statement is framed from such "constitution statements" as have reached me. The strength is that of regiments as they stood on the last day of the year. The strength of the Sappers does not include that of companies absent on command in Burmah. Regiments which had left the divisions before the end of the year are also not included, as the returns are due to the administrative officer of the division in which they were serving at the close of the year. Mortality according to classes.

TABLE No. IX.

Corps.	Hindoos.			Mahomedans.			Christians.			Total.		
	Strength.	Died.		Strength.	Died.		Strength.	Died.		Strength.	Died.	
		In.	Out.		In.	Out.		In.	Out.		In.	Out.
Head-Quarters Sappers and Miners	503	2	4	44	1	1	164	...	...	711	3	5
23rd Regiment L. I.	408	7	2	201	...	...	86	2	...	695	9	2
36th do. N. I.	368	4	2	313	2	...	30	...	...	711	6	2
30th do. N. I.	336	5	...	306	2	2	49	...	...	691	7	2
4th do. L. C.	42	...	...	213	...	2	13	...	...	268	...	2
4th do. N. I.	379	2	1	279	2	...	52	...	...	710	4	1
Total	2,036	20	9	1,356	7	5	394	2	...	3,786	29	14

The total strength is 3,786 with 43 deaths. Of this strength, 2,036 are Hindoos with 29 deaths, or in the ratio of 14·24 per 1,000. Mahomedans number 1,356 with 12 deaths, or in the ratio of 8·85. Christians, with a strength of 394, lost 2, which gives a ratio of 5·07.

These figures, compared with those derived from the returns in 1871 and 1872, are as follow :—

Mortality by Classes in Ratio per Mille of Strength.

	Hindoos.	Mahomedans.	Christians.
1871	11·45	10·65	9·15
1872	13·5	8·17	22·72
1873	14·24	8·85	5·07

Mortality, then, has fluctuated considerably, but Hindoos lose more men, strength for strength, than Mahomedans. But tables to illustrate the rate of mortality amongst the different classes require to be prepared for the entire army in the Surgeon-General's Office.

Mortality as influenced by age.

Mortality as influenced by age.—By the tables which have reached this office the strength, which illustrates this subject, is 4,503 and the deaths 44.

The following table shows the strength and mortality under each age and per-mille ratios of mortality to strength at the same ages :—

TABLE No. X.

—	Under 20 years.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 and upwards.	
	Strength.	Deaths.	Strength.	Deaths.	Strength.	Deaths.	Strength.	Deaths.	Strength.	Deaths.	Strength.	Deaths.
	384	3	763	4	623	8	948	9	856	9	929	11
Ratios per mille of deaths to strength.	7·81		5·24		12·83		9·49		10·58		11·84	

Compared with the two previous years, the figures are—

1871	4·59	7·71	4·83	10·5	17·9	12·2
1872	4·04	13·17	2·66	14·66	6·56	12·5

Except in the last period there is little agreement in the deaths at different ages in the three years.

Sickness amongst troops marching.

Sickness amongst troops marching.—No sickness of importance occurred amongst the different regiments on the line of march within the limits of the two army commands, but one man died at Kolar in the Mysore Province while proceeding on sick certificate to his native village.

Vaccination.

Vaccination.—The following table is constructed from the returns which have reached me. That part of the table which purports to show the number of each class in regimental lines, protected or unprotected by vaccination, must be accepted with considerable reservation :—

TABLE No. XI.

—	Native Troops.	Recruits.	Recruit Boys.	Non-Combatants.		Children.	
				Men.	Women.	Not exceeding 6 months.	6 months to 14 years.
Aggregate strength	4,505	365	299	634	4,491	737	3,895
Number bearing marks of successful vaccination	2,769	223	232	260	1,175	344	2,491
Number of previous small-pox ...	1,552	111	37	164	903	148	686
Do. unprotected by either of above	166	27	29	190	1,528	185	529
Do. of cases of small-pox in 1873.	18	4	1	...	15	20	22
Do. of absentees included in strength, of whom there is no information on above point ...	...	...	...	20	870	40	167
Ratio per cent. of Strength.							
Protected by previous small-pox or vaccination	34·45	30·41	12·37	25·87	20·11	20·08	17·61
Unprotected	3·68	7·40	9·70	29·97	34·02	25·10	13·58

I have no reliable information of the numbers vaccinated. By medical subordinates alone 875 vaccinations were performed, but in some instances vaccinators employed under

the Superintendent-General of Vaccination have visited and worked in regimental lines. Female vaccinators were also employed. The operations by these are not included by medical officers in the monthly return of vaccination performed by medical subordinates, so that the subjoined table does not show the actual amount of work done. For instance, by the table, in the 4th Regiment Native Infantry, 122 vaccinations were performed, but by the Sanitary Report W. O. F. 517 it would appear that 381 persons were vaccinated.

TABLE No. XII.

Corps.	Under one year.					Above one year.					Grand Total.
	Successful.	Unsuccessful.	Doubtful.	Unknown.	Total.	Successful.	Unsuccessful.	Doubtful.	Unknown.	Total.	
Head-quarters Sappers and Miners.	16	7	...	...	23	82	46	1	14	143	166
23rd Regiment Light Infantry ...	18	22	...	...	40	20	41	1	...	62	102
36th do. Native Infantry ...	11	1	...	...	12	72	25	...	...	97	109
39th do. do. ...	4	...	...	...	4	5	1	...	...	6	10
30th do. do. ...	69	...	...	...	69	144	5	...	...	149	218
8th do. do. ...	54	9	...	...	63	41	14	...	...	55	118
4th do. Light Cavalry ...	28	1	...	1	30	...	...	...	...	...	30
4th do. Native Infantry ...	30	8	...	...	38	61	23	...	...	84	122
Total ...	230	48	...	1	279	425	155	2	14	596	875

Europeans.—The small body of Europeans of all ranks, staff and regimental, in the two army divisions numbered 176, of whom 78 were admitted upon the sick report and two (both in the warrant grades) died. Europeans.

The per-mille rates are as follow :—

Admitted to strength...	443·2
Died to strength	11·4

The two deaths occurred, one at Bangalore and the other at Bellary, from apoplexy and disease of heart respectively.

Wives of Europeans.—The wives of Europeans, staff and regimental, numbered 125, with 35 admissions and 1 death. All the admissions and the death occurred in the Mysore Division out of a strength of 88. The casualty was in a lady at the French Rocks from dysentery. Wives of Europeans.

Children of Europeans.—The children are returned at 316, with 62 sick admissions and 1 death. As in the case of wives, all the admissions and the death are returned against the Mysore Division with a strength of 235. The mortality is very low, and, if credited to the Mysore Division alone, is 4·25 per mille of strength; if to the strength of the two divisions, it is only 3·16. Children of Europeans.

Native Commissioned Officers.—The Native Officers numbered in the two divisions 108, with 61 admissions and no deaths. Native Commissioned Officers.

The figures give the following ratios :—

Admitted sick to strength	564·8
Died to strength	Nil.

Families and followers of native troops.—The mortality amongst the families of the sepoys and followers and their families living in lines of native troops is of interest, as affording some clue to the death-rate amongst the native community generally. As conservancy is better enforced in the lines of regiments than in towns, a better condition of health, as evidenced by a lower death-rate, may be expected than amongst the mass of the population in large towns. But the following table shows a mortality in the lines of native troops amongst the families of the men, which is simply in some instances appalling :— Families and followers of native troops.

TABLE No. XIII.

Divisions.	Stations.	Corps.	Estimated Population, exclusive of Troops.	Died.			Mortality per 1,000 of Population.
				Adults.	Children.	Total.	
Mysore Division.	Bangalore ...	Hd.-qrs. Sappers and Miners	1,569	15	26	41	26·13
		23rd Regt. L. I. ...	1,572	17	108	125	79·52
		36th do. N. I. ...	1,427	20	26	46	32·24
		30th do. N. I. ...	1,539	15	25	40	25·99
		8th do. N. I. ...	1,529	41	54	95	62·13
Ceded Districts ...	Bellary ...	4th do. L. C. ...	573	7	4	11	19·20
		4th do. N. I. ...	1,563	27	32	59	17·75
		16th do. N. I. ...	1,566	12	16	28	17·88
		Total ...	11,340	154	291	445	39·24

In one regiment, for instance, the 23rd, at Bangalore, out of an estimated population, exclusive of troops, of 1,572 souls, there were 125 deaths, or in the ratio per mille of population of 79·52 ! In the 8th Regiment at Mercara the death-rate is 62·13 per mille. The average for the whole, comprising a population of 11,340 souls, with 445 registered deaths, is 39·24 per mille. Of the 445 recorded deaths, 291, or over 65 per cent., were " children." " Children " in the returns include boys and girls up to 14 years of age.

In the regiments presenting the greatest mortality, the 23rd at Bangalore, the deaths amongst children were 108 to 17 amongst adults, while in the 8th Regiment at Marcara they were more nearly proportioned, 54 children to 41 adults.

These very high death-rates do not attract that attention from medical officers which they deserve and demand, but attention will be directed to the subject.

In the regiments at Bellary the mortuary rate amongst this class of the community is very moderate.

Lock Hospitals.

General observations on the working of them, and of the rules for control of venereal disease.

General observations on the working of them and of the rules for control of venereal disease.—The working of the Lock Hospitals at Bangalore and Bellary cannot be said to be satisfactory. In former reports I have advanced that the number of registered women, especially at Bangalore, are small when the population of the station and number of European troops are taken into account, and that I do not think that they (the registered women) represent but a fraction of the women who cohabit with the European soldiery.

The stringency of the rules under which registration is effected is such that Police and Cantonment Magistrates find it very difficult to convict women of prostitution. The *onus* of proof rests with the Police, and, although suspicion may be strong, it is difficult to adduce such evidence as may satisfy the Magistrate.

Again, in the matter of periodical examinations of the small number who are registered, much evasion of the rules is practised ; and when complaints are lodged with the Police by medical officers in charge of Lock Hospitals against women who have absented themselves for examination, the reply is generally, " cannot be found."

At Bangalore the Committee who superintended the working of the rules and the administration of the hospital have strongly recommended the establishment of " Lall Bazaars " in connexion with each regiment, and I am quite satisfied that this is the only measure which will bring to light the large amount of clandestine prostitution which now goes on. If my information is reliable, there are many women now cohabiting with the troops who would not object to associate themselves with particular regiments—register, in fact, as public women attached to, and living under the protection of, particular regiments—who will not register as *general* prostitutes in the office of the Cantonment Magistrate.

Having written so much, I proceed to give the results of the working of the rules and of the operations of the hospitals at the two stations, and first at Bangalore.

Bangalore.

Bangalore.—The average number of registered women at Bangalore for the year is 77, the highest number being 85 in November and December and the lowest 70 in June. The numbers treated in hospital during the year are as follow :—Remained under treatment 1st January 1873, 44 ; admitted during the year, 419 ; total treated, 463. These figures give a ratio of 601 treated to every 100 of strength, or, in other words, every registered woman has been six times in hospital. This represents a very large amount of disease amongst the registered women ; or to put it still in another light, out of an average of 77 women, 47, or 61 per cent., have been constantly in hospital, leaving 30 women only as at any one and the same period capable of plying their trade in this large cantonment.

These figures may advantageously be given below :—

Average number of registered women	77
Do. constantly in hospital	47
Do. capable of plying their trade	30
Total number treated for disease	463
Ratio per cent. to strength of sick treated	601

or every woman has been on an average six times in hospital during the year.

Of the 463 women treated in hospital, 156 suffered from gonorrhœa, 231 from primary, and 22 from secondary or tertiary syphilis. The other cases were instances of leucorrhœa or uterine affections, not diagnosed as syphilitic in character. There were nine deaths, two recorded under primary and six under secondary syphilis, one under carcinoma (uteri), and one under debility (syphilitic cachexia ?).

The Surgeon in charge remarks that disease amongst the registered women was generally of a mild type, but that some cases of malignant type occurred amongst women who voluntarily sought for treatment, and who were not registered, as they came from villages beyond the limits of the cantonment.

Prevalence of disease amongst European troops.—The prevalence of disease amongst European troops has been as follows :— Prevalence of disease amongst European troops.

Average annual strength			1,793
Admitted by primary syphilis...	122	... ...	245
Do. by gonorrhœa ...	123		
Ratio of admissions per mille to strength.	By primary and secondary venereal disease ...		68·04
	By gonorrhœa		68·60
	By both affections		136·64

These last figures contrasted with previous years are as shown in the margin. Disease, in the year under report, prevailed much to the same extent as in the year preceding. As regards the prevalence of disease in the different arms of the force, the results are as follow :—

1866.. 108·8	1870.. 117·2		
1867.. 116·09	1871.. 169·1		
1868.. 201·9	1872.. 134·8		
1869.. 109·6	1873.. 136·6		

	Average Strength.	Total Admissions.	Ratio per Mille of Strength.
Royal Artillery	442	68	153·8
18th Hussars	450	49	108·8
89th Foot	921	136	147·3

So that the Artillery suffered the most and the Cavalry the least.

Bellary.—At Bellary the following figures represent the points adduced above :— Bellary.

Average annual strength of registered prostitutes			76
Average daily sick for the year, or number constantly in hospital ...			8·3
Average number at liberty to ply their trade			67·7
Total number treated for disease			87·
Ratio per cent. to strength of numbers treated			114·5
Number of times each woman was in hospital on an average during the year			1·1
Average strength of European troops			928
Admissions by	Primary syphilis ... 183	... ...	319
	Secondary do. ... 54		
	Gonorrhœa ... 82		
Per-mille admissions to strength by all venereal disease			343·75

These figures offer a great contrast with those given for Bangalore. In the first place, with a strength of European troops about half that at Bangalore the registered women number within one of those at Bangalore. Out of the number, 8 represent the average daily sick against 47 at Bangalore, and each woman was only 1·1 times in hospital against 6 times at Bangalore.

But, with this very much more healthy condition of the women, as indicated by the numbers constantly under treatment, disease was much more prevalent amongst the European troops, the admissions being in the ratio of 343·75 per mille of strength against 136·64 at Bangalore, or over twice and-a-half as much.

This may be accounted for perhaps partly by the different results of periodical examinations at the two stations. To illustrate the possible modifying agency of examination, it is necessary to take only the women constantly out of hospital plying their trade, as they alone have to attend for periodical examinations. At Bangalore I have shown that these women averaged 30 only. At Bellary they averaged 58.

In both cases these women ought to have presented themselves for examination four times in the month ; so that at Bangalore the number of women who should have been examined monthly will be $30 \times 4 = 120$.

The average monthly examinations as given are 124, so that it appears that examinations weekly of the women not in hospital were really made, and further the numbers reported for non-attendance during the year amounted only to 42.

At Bellary, with an average number of 58 constantly out of hospital plying their trade, the numbers examined monthly ought to have been $58 \times 4 = 232$. The average monthly attendance for examinations is, however, returned at 40·5, while 380 women were reported to the Cantonment Magistrate for non-attendance.

This proves that at Bellary registration is a farce, as more than half the women evade that periodical examination which registration under the Act is intended to provide for. I am not aware what explanation the Cantonment Committee may have given to His Excellency the Commander-in-Chief in the annual report which they are required to make on the subject. But, in the face of the very large amount of disease which prevails at that station, the subject is most important.

Head Quarters, Sappers and Miners.

Station—Bangalore.

Average strength	918
Do. present	918
Admissions	841
Daily sick	23
Deaths in hospital	4
Do. out of hospital	2
Pensioned	9
Sick leave	14

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Bangalore	54·17	2·13	1·77	6·21	...
1871 ...	Do.	73·07	3·02	1·90	2·04	3·68
1872 ...	Do.	108·32	3·56	1·40	3·13	2·59
Average ...	.....	78·52	2·90	1·69	3·79	2·09
1873 ...	Bangalore	91·61	2·50	·65	·98	1·52

Surgeon-Major Lowe was in medical charge of this corps up to the date of his death, which took place on the 29th April 1874.

Climate. *Climate.*—The climate has been temperate. The setting in of the monsoons has been rather late last year, and the fall of rain has been below the usual average.

Marches. *Marches.*—None.

Huts and lines. *Huts and lines.*—The barracks and lines have an east and west facing; they are well ventilated and open. The position is a healthy one.

Huts well built of rammed mud with tiled roofs. The main street is 50 feet wide, the subsidiary streets 25 feet each; all clean and open.

No defects have been observed. The drains are good and complete.

Water-supply. *Water-supply.*—The water is obtained from several large wells in the neighborhood of the Ulsoor tank and lines. It is of good quality, and has been sufficient in amount.

Sanitary arrangements. *Sanitary arrangements.*—The lines have been regularly and very properly looked after; no local cause of disease has been noticed.

Diet. *Diet.*—The provisions have been on the whole reasonable in price and plentiful. Vegetables are very abundant. The troops have received compensation for rice owing to the difference of the Mysore and Madras seer.

Liquors. *Liquors.*—Ale, porter, and rum have been issued to the Europeans of good quality. No complaints have been made.

Clothing. *Clothing.*—Sufficient. No changes have been needed.

Foot-soreness. *Foot-soreness.*—Men are constantly coming in hospital with foot-sores induced by bad boots; rest without boots for a few days generally recommended. This is sufficient to heal the sores.

Duty and exercise. *Duty and exercise.*—The men have been employed in various trades, such as stone-cutting, brick-making, pottering, sawing, carpentry, surveying and lithography, and field works. None of these employments have been severe or prejudicial to their health. The average number of nights in bed has been 5.

Drill. *Drill.*—The regiment turns out twice a week in the mornings from 6 to 7 A.M.; two days per week are given to company drill morning and evening. In the evening from 4-30 to 6-30 P.M. The running drill is kept up on Monday mornings, instead of drill on parade ground, from 7-30 to 8 A.M. This running the men have gone through in their working dress.

Exercises. *Exercises.*—The Sappers have a good gymnasium attended both by Europeans and Natives. Cricket is also occasionally played. The Europeans have a billiard table. The conductor is gymnastic instructor, and takes considerable pains with the men. There are tolerably good soldiers. Gardens under cultivation.

Lock-up rooms and cells.—The old solitary cells have been razed to the ground and a new one erected instead, situated within the enclosure of the main guard. They are kept clean and well ventilated. Lock-up rooms and cells.

Vaccination.—

Fighting men ...	Successful	45	86	Vaccination.
	Unsuccessful ...	41		
Followers and children	Successful	57	59	
	Unsuccessful ...	2		
	Unknown			
			145	

No cases of small-pox occurred during the year.

Diseases.—There has been no overcrowding, no defective ventilation, and the general sanitary condition has been good. Dengue has been epidemic in the Sapper Lines in the months of January, February, May, June, and July 1873. The total admissions during the above months were 339, and only one death occurred in the month of May in an old man who returned from Rangoon on account of general debility. Whilst in hospital he was attacked with dengue, severe diarrhœa supervened, and he became quite collapsed and never rallied. With many the peculiar ardent fever with scarlatinal spots were well marked, but the majority suffered more from rheumatic pains. The locality, or the condition of the station, had nothing whatever to do with the epidemic. Diseases.

One case of phthisis pulmonalis was admitted, and he was sent on sick certificate to his native country (Vellore), and ten cases of respiratory diseases were under treatment and two proved fatal, *viz.*, one bronchitis and one asthma, attributed to cold and exposure to night air, and probably also from hereditary predisposition.

The following zymotic diseases have been under treatment during the year :—

Chicken-pox	13
Mumps	2
Ague	80
Continued fever	341
Rheumatism	20

Of the above 421 cases of fever, one (dengue) died—an old man who lately returned from Rangoon on account of general debility ; diarrhœa set in, and he died from extreme debility. The treatment adopted in cases of fever has been precisely the same as the preceding year. Dengue has been epidemic in the Sapper Lines ; 341 cases were admitted during the year, and only one proved fatal as noted above. The majority of cases suffered more or less from rheumatic pains.

No cases of cholera occurred during the past year. Of the 20 cases of rheumatism, all were of a mild type.

There have been 53 admissions for injuries sustained in sapper work ; nothing particular to remark on.

Apoplexy—one admitted (Apothecary T. Thomas) and died a few hours after attack ; the brain was universally congested, with sanguinous effusion at base of brain and a clot of blood lodged on anterior portion of cerebrum.

Two deaths from diseases of lungs—one bronchitis, a young man of 25 years of age, was admitted into hospital on the 21st May with profuse glary mucous expectoration and difficulty of breathing and general constitutional disturbance ; the symptoms became aggravated by the 30th, and he expired suffocated : the other was a case of asthma ; having suffered repeatedly, was sent on sick certificate to Toomcoor, and returned to Bangalore without deriving any benefit by the change ; he was admitted into hospital on the 12th July 1873 and expired on the 23rd, with much bronchial effusion ; stimulants were freely given to no purpose.

One death occurred out of hospital. A Private of the I Company was marched up to Captain Pennyfather's quarters to receive his pay together with other men of his company ; shortly after he was missing, and, on search being made, he was found hanging to one of the beams of the officers' horse-stables dead ; his body was brought to hospital and interred the following day.

The total number of admissions during the year has been 674 ; compared with last year, the number has increased by 63 owing to the outbreak of dengue.

The Annual Medical Report and Returns from Rangoon have not yet been received ; the strength of this detachment is taken from the constitutional return.

The G, H, and K Companies at Secunderabad, strength 319, had 667 admissions and no deaths "in hospital." One death "out of hospital" occurred from diarrhœa.

(The Annual Medical Report has not been received ; the above is taken from the Annual Return of Sick and Wounded, W. O. F. 298, received on the 13th instant.)

The Detachments E Company at Lovedale, strength 66, had 62 admissions and one death from dysentery. The Annual Medical Report is herewith appended.

At Coonoor, strength 66 ; had 34 admissions and no deaths. (No report received.)

The average strength of the regiment for the year has been 1237·91. Detachments of companies are as follow :—

	Strength.
At Rangoon B Company	120·25
At Secunderabad	319·58
At Lovedale and Coonoor	128·25

The cases of mortality arranged according to class are shown in W. O. F. 298. The total deaths during the year has been only nine, which gives 7·18 per 1,000 per annum. The position of lines, &c., was given in former report : no change has taken place.

Hospital ventilation.

Hospital ventilation.—The ventilation of the hospital is always good.

There has been no overcrowding in the hospital wards. During the prevalence of dengue tents were pitched.

Latrine is always kept clean and in good order. The dry-earth system is used.

Hospital water-supply.

Hospital water-supply.—Good and sufficient. Procured from a well and brought to hospital by a puckally.

Epidemics.

Epidemics.—No cholera or small-pox occurred during the year.

General conclusions.

General conclusions.—There has been a larger number of admissions during the year than the past one owing to the prevalence of dengue.

Deputy Surgeon-General Ranking inspected this regiment on the 24th December 1873, and reports as follows :—

Barracks.

Barracks.—No alterations have been effected in the lines of the regiment or in the accommodation for the Europeans and their families since last inspection. The lines are at all times kept very clean. The drainage is now very good. The buildings are all clean, and all sanitary arrangements in connection with barracks, lines, and family quarters good.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The public latrine is well kept with coal-tar and earth. The new cells referred to in last report are built, as also the new latrine for the guard which is well kept on the earth and coal-tar system.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—The conservancy of the immediate neighbourhood is good.

Hospital.

Hospital.—The hospital is precisely as described in former reports. It is clean and in good repair, and well administered in its sanitary and medical relations. The out-houses are clean, and the latrines well kept. The accommodation of the hospital is sufficient, and it is well drained and ventilated.

23rd Regiment Native Infantry.

Station—Bangalore.

Arrived from Quilon 15th October 1872.

Average strength	648
Do. present	608
Admissions	472
Daily sick	14
Deaths in hospital	9
Do. out of hospital	2
Pensioned	18
Sick leave	8

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Quilon	37·39	2·14	1·31	2·63	...
1871 ...	Do.	40·94	1·97	·29	1·16	·58
1872 ...	Bangalore	151·42	3·67	1·02	4·26	2·20
Average ...	.....	76·58	2·59	·87	2·68	·92
1873 ...	Bangalore	77·63	2·30	1·69	2·77	1·23

Surgeon-Major W. H. Morgan has been in charge of this corps during the year, and submits the following report :—

Climate.—The climate of Bangalore does not appear to be suited to the sepoys or their families, and during the year they have suffered principally from fevers, eruptive fevers, rheumatism, and from bronchial and pulmonary complaints, as will be more fully described in the medical report. Climate.

Marches.—Head-quarters have been stationary. A detachment of 18 is sent on alternate months to Oossoor. E and F Companies arrived on the 31st January from Quilon, which station they left on the 20th. In the middle of March the east hutting lines were entirely occupied by the men and followers of the 23rd; these lines were vacated by the 39th Native Infantry. Marches.

Sepoy huts.—These lines are approached by a road more or less furrowed by the flow of water from higher ground; their position is as regards aspect confined, as regards elevation insufficient, as regards neighbourhood crowded. Position unhealthy. They are just the other way; that is, they are low, crowded, badly ventilated, and built on soil polluted with excrementitious matters, and certainly detrimental to health. Sepoy huts.

There are two doors and three windows in the quarter-guard room, the superficial area of which is 333 feet; it is occupied by a guard of 13 men with 25·6 superficial feet per man. To avoid crowding several of the men sleep on the verandahs of the place-of-arms, and are exposed to chills which very often lead to fever, pneumonia, bronchitis, rheumatism, &c. The drainage of the huts is bad; there are often ditches in front of them which receive a constant flow of slops and other impurities; and, in spite of the daily cleaning out of these ditches, there is usually an amount of filth in them which contaminates the soil and taints the air. These defects are noted in periodical reports, and have been brought to the notice of the authorities by the Deputy Surgeon-General.

Nuisances.—The conservancy of the lines is well attended to; the condition of the drains is reported on weekly, but nothing has been done during the year to remedy the same. Nuisances.

Water-supply.—The principal sources of water-supply are tanks, two large crowded wells, and 45 others scattered through the lines. The supply from the two wells, as well as from numerous others in this locality, has been pronounced by the Water Analyst to be "quite unfit for drinking purposes." I recommended that one of the wells, which had a number of broken chatties and other rubbish in it, be cleaned out, but it was not done. A proposition for the removal of the men to another locality has been made, but it has not been carried out. Water-supply.

Sanitary arrangements.—Supposing this question to refer to the lines, I should say that they have not. It is absurd to pretend that sanitary arrangements have been properly attended to when men are compelled to live in dilapidated huts standing on soil polluted with excrementitious matters; are supplied with water quite unfit for drinking purposes when the accommodation in a hut is regulated by the rank of the occupant rather than by the number in a family, where the drainage is as bad as it can be, and where 107 children have perished during the year. Sanitary arrangements.

Diet.—The average price of rice during the year was 10 measures per rupee, and the sepoys have received compensation to the amount of Rupees 3-5-9 during it. Vegetables are cheap and plentiful; meat can be got all times, but men with large families are seldom able to procure it. Diet.

The appearance of the generality of men who come under my observation belies the supposition that their diet is sufficiently nutritive.

Clothing.—There has been no change in the regulation clothing during the year. The head-dress described in previous years is still worn, and is as open to objection as heretofore. Clothing.

Foot-soreness.—One hundred and forty-eight men have been excused wearing boots for periods varying from one to several weeks. Foot-soreness.

Duty and exercises.—Ordinary garrison and regimental duties. Exposure to night air has occasioned a good many admissions into hospital from fevers, inflammation of the lungs, bronchitis, &c., and this is in some degree due to the men sleeping on the verandahs of the place-of-arms from want of space in the quarter-guard room. Several men fall out on brigade days, as latterly brigades have been held twice a week at Agram, a distance of 3½ miles from the east hutting lines; and men who, with slight abrasions on their feet and excoriations about their limbs, would take a tour of duty make the most of these minor injuries, and are ordered into hospital by the officers. A heavier rifle than the one used for many years by the regiment seems also to have operated as an incentive to some men to come into hospital with the idea that they are not able to handle their arms efficiently. There is further, in my opinion, an amount of scheming at this time of the year on the part of men who have served their time for pension, and others who, by a timely retreat into hospital, expect to escape the Camp of Exercise. Average number of nights per week the men have had in bed has been found 3¼. Duty and exercises.

Drill.—From 6 to 7-30 A.M. daily for the whole regiment, except on Thursdays and Sundays, and from 4-35 to 5-35 P.M. for a company five times a week. Adjutant's drill for two hours daily, morning and evening. Drill.

Lock-up rooms and prison cells.—Good. Lock-up rooms, &c.

Vaccination. *Vaccination.*—One hundred and twelve cases have been operated on during the year, of which 42 were successful and 70 unsuccessful. An Hospital Assistant I sent to the lines to visit from house to house reported sick, and was on the sick list for 2¾ months. He was succeeded by another who has inspected all the huts, and reports that on several occasions he has found several of the inmates absent; in others he was not permitted to see the females. There have been 16 admissions of men from small-pox; of these four bore marks of vaccination and 12 had marks of small-pox; none of these died. Small-pox, measles, and chicken-pox prevailed in an epidemic form among the families.

Diseases. *Diseases.*—As stated in the preceding reply, small-pox, measles, and chicken-pox prevailed in an epidemic form from March to July. The first case of small-pox was reported on the 14th March. Ophthalmia (conjunctivitis) existed among the families in April, May, June, July, August, September, and October. Fevers have prevailed all the year round. Small-pox was contracted from the people in the bazaar, as the families were scattered over the town till the lines were vacated by the 39th Regiment. Although the measures laid down in the Medical Code (Volume 1, Section X., paragraphs 186, 187) were recommended for adoption, the disease spread from hut to hut, which is not to be wondered at considering the overcrowding, defective ventilation, and general insanitary condition of these lines. In November last I was informed that some children who had arrived from Madras and were living in the house of a musician had small-pox; I reported the matter at once to the Commandant and had the cases removed from the hut. Other cases were reported in December, and the same recommendation was made. The prevalence of ophthalmia affords further confirmation of the defective hygienic condition of these lines, the enfeebled health consequent upon imperfect ventilation of the families of sepoys being a strong predisposing cause, while the occurrence of fever may be set down to the malarious climate in conjunction with other causes which will be dwelt upon in the Medical Report.

Although three cases of phthisis pulmonalis were admitted during the year, the field of observation is so small and is still further limited by the unwillingness of natives to permit *post-mortem* examinations, but I must, as in former years, pass a part of this question over. The cases of pneumonia admitted during the year indicate exposure on night duty as the starting point of the attacks; in several cases of fever, lung complications were the most usual concomitants.

Ventilation of the hospital. *Ventilation of the hospital.*—The hospital is well ventilated by doors, windows, and roof ventilators.

As a rule there has been no overcrowding, tents being always asked for, and when obtained pitched for such sick as could not be accommodated in the wards.

Drainage and latrines. *Drainage and latrines.*—Satisfactory; water from the bath-room runs out into the road. Coal-tar is used in the latrine, and the sewage mixed with earth is removed daily. Although earthen vessels are placed on the floor of the latrine, the sepoys are not very careful about using them; hence there is occasionally an ammoniacal odour about the privy.

Hospital water-supply. *Hospital water-supply.*—Water is brought from a reservoir and from wells near the lines, in fact from the same source, and of the same quality, as described in Answer 8, Section III. (barracks).

The means of cooking. *The means of cooking.*—The kitchen is in good order and the means of cooking are those common in the country; hospital comforts are occasionally issued to the sick, but patients are usually dieted by their relatives. The broths, congees, and milk so supplied are badly prepared, and I doubt very much whether there is much nourishment in them. Two pies' worth of milk (about ℥viij by measure) was the quantity brought by a father to a son laboring under pneumonia. In another instance the wing officer supplied all the materials for strong broth to the wife of a patient, and made her prepare it in his kitchen. On the following day the patient said he had taken the broth, and the woman could not be induced to prepare her husband's food under the same supervision. The man was of the chuckler caste.

Epidemics. *Epidemics.*—No cases of small-pox, measles, and chicken-pox were treated in separate tents, and steps were taken to prevent communication of the sick with the lines.

General conclusion. *General conclusions.*—1. Small-pox, chicken-pox, and measles prevailed as epidemics from March to July.

2. The percentage of admissions to strength during the year was 72·8.

3. The percentage of mortality (in hospital) to strength was 1·5 and to admissions 1·9.

4. The number pensioned and discharged was 22 or 3·4 per cent. to strength.

5. Contrasted with the average percentages of the last ten years (1863 to 1872) the percentages of admissions, of mortality to strength, and of invaliding are higher this year.

Deputy Surgeon-General Ranking inspected this regiment on the 29th December, and reports as follows:—

Barracks. *Barracks.*—The lines of this regiment have been so fully described in former reports that it would be a work of supererogation again going into details; suffice it to say that they are in every respect bad. Bad as to construction of huts, crowding together, and narrowness of streets, while the drainage and sewerage is as bad as it can well be. All these defects have

been fully admitted by "higher authority," and the completion of the lines now being built for the other regiment is only awaited before commencing new lines for this regiment also.

Sanitary condition of all buildings.—The sanitary condition of all public buildings are fair; the quarter-guard room is, as before reported, too small, but it is clean. There are public latrines. The small domestic latrines in the courtyards of the sepoys' huts are kept as well as the nature of their construction admits of. Excreta are removed daily under contracts. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—The sanitary condition of the immediate neighbourhood is fair, and improvements, especially in the matter of drainage, are in progress. Conservancy of the neighbourhood.

Hospital.—The hospital is precisely as described in former reports; it is clean and in fair repair, well ventilated, and drained. There has been occasionally necessity to supplement its accommodation by tents. Hospital.

36th Regiment Native Infantry.

Station—Bangalore.

Arrived from Thyetmyo 26th February 1872.

Average strength	696
Do. present	637
Admissions	495
Daily sick	22
Deaths in hospital	6
Do. out of hospital	2
Pensioned	26
Sick leave	30

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Thyetmyo	54·57	6·40	1·06	·30	5·48
1871 ...	Do.	51·45	2·10	1·23	...	4·00
1872 ...	Bangalore	74·80	3·48	1·11	4·46	3·63
Average ...	.....	60·27	3·99	1·13	1·58	4·37
1873 ...	Bangalore	77·70	3·45	1·14	3·73	4·31

The following medical officers have been in medical charge during the year :—

Surgeon D. H. Cullimore.
Surgeon-Major C. Robertson, M.D.

The last-named medical officer submits the annual report.

Climate.—During the past year the climate of Bangalore has on the whole been healthy. The rainfall has been much less than usual, but up to the present time no bad effects have resulted. Climate.

Marches.—The regiment has not been on the march during the past year. Marches.

Sepoy huts.—The site on which the lines are built in itself is not objectionable; it is open and freely exposed, and, from the configuration of the ground, has good natural drainage. Sepoy huts.

The huts at present in use are of a very inferior description, but new huts, erected in a much superior manner, are now in part completed and ready for occupation. A new and improved system of drainage has also been begun.

Nuisance.—I have not observed any nuisance arising from any of these causes. Nuisance.

Water-supply.—The water-supply is from Reservoir No. 3, and also in part from wells in the lines. The supply has been ample, the quality somewhat indifferent. I have forwarded a memorandum on this subject. Water-supply.

Sanitary arrangements.—On the whole the local sanitary arrangements have been good, and leave no causes of disease. Sanitary arrangements.

Diet. *Diet.*—Provisions, though not so cheap as during the previous year, have not been dear; vegetables are always abundant at this station. The men have received on an average Rs.—— monthly as compensation for dearness of rice.

I am of opinion that, as a general rule, the diet of the native troops is not sufficiently nutritive, considering the duties they have to perform.

Clothing. *Clothing.*—The clothing of the troops has been sufficient and adapted to the climate of the station. I have not recommended any changes.

Foot-soreness. *Foot-soreness.*—The native troops provide their own boots, and there is frequently a considerable amount of foot-soreness, but not sufficient to require representation.

Duty and exercises. *Duty and exercises.*—The duties of the troops have consisted of parades, drills, musketry instruction, escort duties, garrison and regimental guards. The average number of nights per week the men have had in bed has been five. I have always considered that the duties of the native troops at this station are very heavy.

Drill. *Drill.*—Drills have generally taken place on five days per week, generally either at 6 A. M. or 6-30 A.M. During musketry instruction drills are also held in the evening. I have not observed any bad effects from these drills, and believe that guard duties are more unfavorable to health.

Exercises. *Exercises.*—There is no provision for gymnastic exercises in a native corps. Some of the men play at cricket, while others employ themselves at soldiers' gardens.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the prison cells has been satisfactory. The barrack guard-room is defective both as regards space and ventilation, but I have not seen any prisoners suffer in consequence.

Vaccination. *Vaccination.*—For information on this subject I refer to a separate return. No case of variola has occurred in the regiment. No men have been revaccinated except a few recruits.

Diseases. *Diseases.*—No epidemic disease has prevailed during the past year.

Only two cases of phthisis pulmonalis have occurred. In these cases it appeared probable that insufficient and non-nutritious diet led to the development of the constitutional disease.

The total strength of the regiment has been 710. The total number treated in hospital has been 519, *viz.*, 24 remaining from the previous year and 495 admissions. Of these, 432 have been discharged to duty, 30 have obtained sick leave, 24 have been invalided, 6 have died, 5 were transferred to other hospitals, 9 remained under treatment, as also 7 convalescents who had appeared before an Invaliding Committee, and in 6 cases the name of the disease was changed, thus giving a fresh admission. The largest number, *viz.*, 153, was caused by the various forms of fever, 111 being recorded as cases of ague. The different varieties have not been detailed; but, though many cases of quotidian have been observed, the majority might be classified under the sub-variety "Irregular." This disease has always been ascribed to malaria, but it seems to me more probable that many cases of "Irregular Ague" owe their origin to other causes. The treatment of uncomplicated cases has been satisfactory. Three cases of remittent fever were admitted; they were all of a very grave nature. A few cases of dengue and 19 of chicken-pox occurred during the earlier part of the year. Of these 153 cases of fevers, 145 were discharged to duty, 4 died, and 2 obtained sick leave. During the previous year the admissions from fevers numbered 138.

Of skin diseases 69 cases have been admitted. They consisted almost entirely of the different varieties of itch.

Under the head of "Debility" 61 have been admitted, the number for the previous year having been 37. These cases may be subdivided as follows:—1st, those where the system has been broken down by previous disease; 2nd, those which originate from insufficient and non-nutritious diet, combined with harassing duties; 3rd, those who having completed 15 years' service, and from some cause or other having become dissatisfied, have resolved to get invalided at the earliest opportunity. In these cases a man may appear in hospital weak, emaciated, and unable to perform his duty, yet no defined disease be ascertainable.

Two cases of insanity have occurred, and both have been transferred to the Asylum at Madras. One, who became insane while on sick leave, subsequently died; the other is still under treatment. One patient, who had been transferred during the previous year, was pensioned.

Four cases of disease of the eye have been transferred to the eye hospital, with the following results:—Two men were pensioned shortly after arrival; one, said to be improved, re-joined the regiment, but it appears that his vision is even worse than before, and he is shortly to appear before an Invaliding Committee; the fourth is still under treatment, but will, I understand, be also pensioned. Twenty-six men have been invalided. Three were discharged the service on account of disease, the remaining 23 being pensioned; of these six men were over, and 17 under, 20 years' service. It must, I think, be allowed that the invaliding regulations at present in existence require revision. Any man, after 15 years' service, pronounced unfit by an Invaliding Committee, may obtain the first rate of pension, which cannot be increased till after a further service of 25 years. The operation of such a rule must be obvious. A man, having served 15 years, may prefer to take the smaller rate with the pretty certain chance of obtaining remunerative employment to undertaking a further

service of 25 years. He accordingly determines to get invalided. The only difficulty is to pass the Committee; for this purpose he goes into training, reduces his diet, loses flesh, falls out at parades with the inevitable pain in the loins, &c., &c., and comes, or is sent to, hospital, where, after being rejected twice or thrice, he is at last admitted under the head of "debility" or "chronic rheumatism." All remedial measures having proved quite unavailing in his distressing case, he is at last brought before an "Invaliding Committee" and pensioned to the great satisfaction of all who may be concerned. Having attained his object, his health improves with a marvellous rapidity, and he is soon fit for any employment that may turn up. On the other hand, how fares it with the soldier who honestly endeavors to serve out his full time, *viz.*, 40 years' service. After 30, or at most 35 years, he begins to find that his constitution is not what it used to be. A march to Agram is too much for him; night duty during the monsoon is often followed by aches and pains (a true case of chronic rheumatism); he cannot very distinctly see the target at 800 or 900 yards, and finally is told by his Wing Officer that he must go to pension immediately whether he wishes it or not. So he retires, with exactly the same pension as the man who, after only 15 years' service, by successful malingering, became invalided. In such a system, there are, in my opinion, two errors. No hope of pension at such an early period of service as 15 years should ever be held out, and again no inducement should be given to men to remain after 30 or 35 years' service, by which time very few sepoys will be found to discharge efficiently the duties now required of them.

There have been six fatal cases. Two were cases of ague, one complicated by pneumonia, the other lapsed into typhoid fever. Two cases of low remittent fever, in both of which the patients appeared to have been ill for some time before they came to hospital. The case of phthisis died almost immediately after return from sick leave, which he had obtained while the disease was still in an incipient stage. One died from cardiac valvular disease. As no *post-mortem* examination could be obtained in any of these cases, the diagnosis formed during life could not be verified, and the record loses any value which it might have possessed.

Ventilation of the hospital.

Ventilation of the hospital.—The ventilation of the hospital has been good. There has been no overcrowding of the hospital ward; but, as this is capable of containing only 19 beds, it has been necessary to procure tents for the accommodation of the sick.

Drainage and latrines.

Drainage and latrines.—The condition of the drainage, as also of the latrines, has been good. The earth system has been efficiently carried out. I have not had occasion to represent any defects.

Hospital water-supply.

Hospital water-supply.—The hospital water-supply is the same as that for the lines.

General conclusions.

General conclusions.—The general health of the regiment during the past year has not, I consider, been very satisfactory. The number of daily sick has been comparatively high, as also the mortality, and there has been a considerable loss by invaliding. I am of opinion that the principal, if not the sole, cause of this unhealthiness has been the harassing nature of the duties required from native troops at this station. Though the average number of nights in bed has been three for the whole year, yet it has frequently happened that the men have only had two consecutive nights in bed. Four nights should, I think, be always secured to the troops in this station, where exposure to the sudden transitions of temperature is more likely to be attended with bad effects. Musketry instruction now forms a great addition to the duties of a native soldier, and one for which no allowance seems to have been made.

Deputy Surgeon-General Ranking inspected this Corps on the 31st December 1873, and reports as follows:—

Barracks.

Barracks.—The old lines are still occupied. The new lines are nearly constructed, and only await the completion of the drainage by V-section stone-drains to be occupied. The small domestic latrines and bathing places in the courtyards are not yet constructed, so I think it better to leave a description of the new lines till they are complete and in occupation. The conservancy of the old lines is carried out as efficiently as they admit of. Excreta are removed by contract.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The buildings in use by this regiment are in good repair and clean. The quarter guard-room is small, but clean. The latrine is well kept.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—Sanitary condition of immediate neighbourhood of the lines fair. Drainage much improved within the last two years.

Hospital.

Hospital.—No change in the accommodation, &c., of the hospital. Building in doubtful repair, and it is proposed to execute some extensive repairs, indeed almost entirely to re-roof it. It has been occasionally necessary to supplement the accommodation by tents. The ventilation and drainage is good, and the building clean. Conservancy of latrines and outhouses good.

30th Regiment Native Infantry.

STATION—FRENCH ROCKS.

Arrived from Thyetmyo 11th February and 20th March 1869.

Average strength	721
Do. present	582
Admissions	599
Daily sick	10
Deaths in hospital	7
Do. out of hospital	2
Pensioned	...
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding, as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	French Rocks	77·34	2·31	1·84	2·46	2·61
1871	Do.	75·36	3·24	1·97	3·10	3·52
1872	Do.	60·20	2·01	·56	1·84	2·12
Average	.....	70·96	2·52	1·45	2·46	2·75
1873	French Rocks	102·92	1·71	1·24	...	·55

The following medical officers have been in charge of this corps during the year :—

Surgeon-Major E. S. Cleveland.
Do. J. G. Gibbs.
Surgeon G. F. Bevan.

The last-named medical officer reports as follows :—

Climate. *Climate.*—The climate of the station during the past year has been characterised by a diminished rainfall as compared with previous seasons. This had probably some influence on the number of admissions for intermittent fever, which in November and December—the fever-months in the station—were fewer than usual. The climate cannot be said to have had any particular effect on the diseases of the place, and its influence on the health of the troops was, on the whole, favorable.

Marches. *Marches.*—The regiment marched from the French Rocks on the 28th December to take part in the Camp of Exercise at Bangalore. I did not accompany it, but have heard that the health of the men was excellent.

Sepoy huts. *Sepoy huts.*—The lines are situated on high ground at the north side of the cantonment. They are somewhat exposed, but a better position could not be found in the immediate locality.

Nuisance. *Nuisance.*—The urinal connected with the barrack was the subject of one communication from me to the proper authority. I pointed out that there was neglect of proper precautions in the removal of the urine, which flowed into a chatty outside the building, and was allowed to accumulate so as to taint the air in the immediate vicinity. The objectionable chatty is still in use, but steps have been taken to lessen the evil by having it more regularly cleaned.

Water-supply. *Water-supply.*—The quality of the water-supply since I assumed charge of the regiment has been good, and its quantity sufficient.

Sanitary arrangements. No recommendations made.

Sanitary arrangements.—The sanitary arrangements have on the whole been well attended to, and I am not aware of any local causes of disease requiring removal.

Diet. *Diet.*—Provisions have been cheap and plentiful.

Vegetables abundant.

No compensation received.

The men diet themselves, and in many cases it is to be feared is not by any means sufficiently nutritive or varied to preserve health, as several of them have numbers of relatives who are totally dependent on them for sustenance.

Clothing.—The uniform is adapted to the climate and is changed according to the seasons. Clothing.

Their own clothing is probably in many cases insufficient for this climate, and to this cause some cases of ague are, I think, undoubtedly due.

Foot-soreness.—A few cases of foot-soreness occur, which doubtless will continue to happen since stockings are not worn. The men generally report themselves before it has advanced to any extent. I recommend boots to be excused for a few days, which, without any other treatment, has the desired effect. Foot-soreness.

Duty and exercises.—The duty consists of the usual guard duties, drill, and occasional parades. Latterly the parades have been more frequent—four times a week—in preparation for the Camp of Exercise. The hours were for the first bugle 5-45, second 6-15. Its effects on the health of the troops was beneficial. Duty and exercises.

Average number of nights in bed, 6 in 7.

Drill.—The drill takes place between the hours of 5 and 7 A.M. usually in hot weather, and 5-45 and 8 o'clock in cold. There is also a drill in the evening for a shorter time, commencing about 5 P.M. Drill.

The influence on the health of the men was rather beneficial than otherwise, and it has not been necessary for me to make any recommendations.

Exercises.—None provided. Exercises.

Lock-up rooms and prison cells.—Sanitary condition satisfactory. Lock-up rooms and prison cells.

No defects observed.

No recommendations made.

Vaccination.—The vaccination in the corps has been well kept up notwithstanding the prejudice of the natives. Vaccination.

Since I assumed charge of the regiment I have seen no cases of small-pox among men properly vaccinated; some few of the corps, with doubtful vaccination marks, were revaccinated; of these most were unsuccessful.

Diseases.—The epidemic of dengue, which prevailed principally, if not altogether, during the months of May and June, is the only one worthy of remark, and will be fully noticed in the report. There were 51 admissions for this disease during the former month and 38 in the latter. The disease appeared to me to be of a milder form than what I have seen during the epidemic in Madras. Although the fever in most cases ran high, I was often not able to find a trace of any eruption over the body, but this may have been partly owing to the dark skin of the natives. The sepoys were unable to do duty for days after their discharge from hospital, and, as a rule, a week's convalescence was necessary to enable them to recover the use of their limbs, and even after this I have seen as many as 20 or more falling out on parade through inability to walk. Diseases.

I believe this epidemic traversed most of the Mysore country.

I know it was very prevalent among the families of the sepoys and in the villages in this neighbourhood. The people generally seemed never to have remembered any disease of the kind previously, and tom-tom, with various ceremonies and prayers to their gods, was the order of the day. I am not aware of any fatal case, although I have met with several cases of convulsions in children and even in pregnant women, which were undoubtedly due to the disease.

There was no overcrowding or defective ventilation or drainage beyond what has been previously pointed out. No defects in the latrines or water-supply, or extra fatigue or exposure, and the epidemic which prevailed cannot be said to have been connected in any way with these.

There has been only one case of phthisis pulmonalis during the year, and this occurred previous to my assuming charge of the regiment.

Ventilation of the hospital.—The ventilation of the hospital has been very good; there are perhaps too many doors and windows, so that it is draughty at times. Ventilation of the hospital.

No representations have been made.

During the epidemic of dengue there was some overcrowding, but not such as to produce any injurious effect. As a rule there was plenty of accommodation.

Drainage and latrines.—No inconvenience has been found to result from deficiency of drainage. The latrines have been regularly attended to, and the dry-earth system is carried out. Drainage and latrines.

No representations found necessary.

Hospital water-supply.—Good and sufficient. Hospital water-supply.

General conclusions.—French Rocks on the whole appears to be a healthy station, particularly for Europeans. The climate is agreeable during the greater part of the year, being never very hot; the average annual mean is about 78° Fahrenheit. I do not think this station agrees with European children; particularly if they have any inherent delicacy, they are liable to suffer from derangements of the digestive organs and anæmia, besides being subject to attacks of the fever of the country. General conclusions.

Intermittent fever is prevalent at certain periods; this prevalence is difficult to account for, as there are no marshy lands in the immediate vicinity, nor is there any superabundant vegetation. It may be due to some telluric influence.

The water is very fair, even that in the tank, but during the hotter months the tank water, subsiding to a considerable extent and being used up for irrigation purposes, leaves a surface covered with decaying vegetation, the effluvia from which is sometimes very unpleasant.

The epidemic of dengue, which occurred during the months of May and June, cannot be said to have been in any way connected with defective sanitary arrangements.

Deputy Surgeon-General Ranking inspected this regiment on the 8th November 1873, and reports as follows:—

Barracks. *Barracks.*—I have no alterations to report in the lines of this regiment. They are on open elevated ground, well drained by natural fall, assisted by the usual surface gutters, which are as well kept as the system admits of. The streets are wide. The huts in good repair and clean, and general conservancy is well attended to.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—All buildings clean and in a good sanitary condition. The two public latrines are cleaned daily, the nightsoil being removed from them and from the small privies in the courtyards of sepoys' huts by contract.

Conservancy of the neighbourhood. *Conservancy of the neighbourhood.*—Conservancy of regimental bazaar and neighbourhood of lines generally very carefully looked to.

Hospital. *Hospital.*—No change in the hospital, except that it has been color-washed within and without. It is very clean. Accommodation ample, except for a short period during the prevalence of dengue. Ventilation and lighting good, and general conservancy well attended to. Water-supply abundant.

CEDED DISTRICT.

Average strength	1,658
Do. present	1,526
Total admissions	826
Daily sick	33
Deaths in hospital	5
Do. out of hospital	3
Pensioned	25
Sick leave	18

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Rate per cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	47·90	1·46	·83	2·72	...
1871	45·84	1·88	·87	1·31	·98
1872	48·10	1·89	·87	2·86	1·18
Average	47·28	1·74	·85	2·29	·72
1873	54·12	2·16	·48	1·50	1·08

The following corps were serving in the division on the 31st of December 1873:—

4th Regiment Light Cavalry.
4th do. Native Infantry.
21st do. do.

Deputy Surgeon-General Ranking held charge of this district during the year. His report is given with that of the Mysore Division.

4th Regiment Light Cavalry.

STATION—BELLARY.

Arrived from Secunderabad 4th December 1872.

Average strength	272
Do. present	225
Admissions	135
Daily sick	5
Deaths in hospital	...
Do. out of hospital	2
Pensioned	15
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Secunderabad...	35·25	2·56	·96	1·60	...
1871 ...	Do.	33·55	1·62	·65	·32	...
1872 ...	Bellary...	36·78	2·00	·66	·66	·33
Average ...	.....	35·19	2·06	·75	·86	·11
1873 ...	Bellary	60	2·22	·73	5·51	1·47

The following medical officers were in charge of this corps during the year:—

Surgeon D. F. Bateman.
Do. Fitzgerald.
Surgeon-Major E. S. Cleveland.

The last-named reports as follows :—

Climate.—The climate of Bellary throughout the year 1873 has been remarkably healthy. The rains, though late in the year, mainly in the month of October, were rather over the average annual fall at this station, and the corps suffered in no way, neither was the standard health of the regiment under my medical charge appreciably influenced in any degree by the seasons throughout. Climate.

Marches.—The regiment which arrived from Secunderabad on the 4th December 1872 has been stationed at Bellary up to the 10th December 1873, on which date it marched *en route* to Bangalore (where it arrived in healthy condition on the 4th January 1874) to take part in a camp of exercise. Marches.

Sepoy huts.—As in all native regiments, the barracks are used as "Place-of-Arms." The regimental lines are unfavorably situated on a level of kunker and granitic soil, with a superstratum of gravel and red earth, aiding in no degree in the gravitation of its surface drainage, thereby calculated to be an unhealthy position. It may be estimated to be about 1,600 feet above sea level. No objection can be made regarding the space and construction of the rooms, since they meet the requirements of the regiment and the purposes for which they are in use. Sepoy huts.

Due attention has been given to this question, and defects remedied as far as under control and command. Objectionable points were noted at the annual inspection of the Deputy Surgeon-General of the division, and the suggestions of that officer in having drains prepared along either side of the main roads in the regimental lines he found to have been duly carried out. Inexpensive semi-circular concrete drains might be established with much advantage in these lines, and the liquid sewage stored in a suitable receptacle and daily carted away.

Nuisance.—None. There is only one regimental latrine of mud-wall divided in the centre by a wall for the sexes, common to all, and insufficient in itself for the requirements of the regiment. This I have duly reported in my quarterly sanitary reports. Nuisance.

Water-supply. *Water-supply.*—The water-supply of the regiment has been amply good and sufficient throughout the year, and there have been no grounds to represent anything otherwise regarding it.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements as far as called for have been properly attended to.

Diet. *Diet.*—Provisions have been ample, though pronounced to be dear. The want of vegetables is great. The troops have received compensation rice-money monthly at Madras rate:—Subadars, Jemadars, Naigues, Privates, Trumpeters, and Puckallies, each Rupees 1-7-10; Farriers, Annas 11-5¼; Followers, Annas 12-4¾; Recruit and Pension Boys, Annas 7-7¼.

The standard health of the regiment throughout the year indicates that the dieting is sufficiently wholesome and nutritive.

Clothing. *Clothing.*—The clothing of the troops has been sufficiently well adapted to the climate of the station, the season of the year, and the state of the weather; and no representations have either been called for or made on such ground.

Foot-soreness. *Foot-soreness.*—One case of foot-soreness only has presented itself to my notice, during my medical charge of the regiment, through ill-fitting boots, which was at once remedied by attention to the cause.

Duty and exercises. *Duty and exercises.*—The usual daily guards and tri-weekly parades, which have not prejudicially influenced the health of the troops.

The average number of nights per week the men have had in bed has been 6¼.

Drill. *Drill.*—As shown in the preceding question, the duties have shown no unfavorable influence on health, and these have, in general rule, been tri-weekly. Parades between the hours of 5 and 7-30 A.M. with the usual daily regimental guards.

No representations have been called for or made on such.

Exercises. *Exercises.*—There have been no provisions at the station for gymnastic exercises or games of any kind.

The men of a cavalry regiment appear to have sufficient exercise in their parade, stabling, and horse-watering duties to need no other.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the prison cells and lock-up rooms has been satisfactory in all particulars of ventilation, cleanliness, &c., and nothing has to be noted as having injuriously affected health.

Vaccination. *Vaccination.*—Vaccination has been fully attended to in the corps, in which there has not been a single instance of small-pox during the year under review, or any one of revaccination.

(*a.*) Troops—vaccinated 10, successful 10.

(*b.*) Followers—vaccinated 20, successful 18, unsuccessful 1, unknown 1.

Diseases. *Diseases.*—The regiment having enjoyed such remarkable immunity from anything like epidemic disease during its year's residence at the station of Bellary, there is nothing noteworthy under such head.

I have in quarterly sanitary reports noted the one regimental latrine divided for the sexes by a central wall to be insufficient, as it appears to me, for the requirements of the regiment and its large body of followers; results on this head I have none yet to show.

There has been no case of phthisis pulmonalis under treatment as shown by the Annual Return, which exhibits one case of pneumonia and one of bronchitis, both ascribable to exposure under fatigue to an east wind.

Ventilation of the hospital. *Ventilation of the hospital.*—The want of a proper regimental hospital has also been duly noted in my quarterly sanitary reports of the year, the regimental hospital having been razed to the ground in April last, having served its period of use, and been considered an insecure building.

The Followers' Hospital, an out-building of the hospital establishment, affording sufficient accommodation for eight men, giving little over 500 cubic feet of air per man, is in present use as a temporary hospital. That it is insufficient for the requirements of a regiment needs no further notice.

As noted in the preceding question, the Native Followers' Hospital, now in use by the regiment, accommodating eight men, has, under peculiarly favorable circumstances, not had its one ward overcrowded, but it is not capable of meeting the slightest pressure of undue sickness in its extremely limited space.

Drainage and latrines. *Drainage and latrines.*—The drainage has been above shown to have been attended to as far as can be commanded by the site of the regimental lines, and the one latrine of mud-wall divided in the centre for the sexes and resorted to by the camp followers has also been shown to be insufficient for the regiment.

The nightsoil of the latrines is daily carted away, and the sanitary condition of the lines generally well attended to.

Hospital water-supply. *Hospital water-supply.*—The hospital water-supply from a neighbouring well is sufficient in quantity and good in quality.

Epidemics. *Epidemics.*—No form of epidemic disease has shown itself in the hospital or out of it during the year reviewed.

General conclusions.—The 4th Regiment Madras Light Cavalry has been stationed at Bellary from the 1st January to the 10th December 1873, on which date it marched *en route* to Bangalore to take part in a camp of exercise. General conclusions.

The regiment has been in excellent health throughout the whole year, having enjoyed remarkable immunity from anything like epidemic disease, and completing its march to Bangalore in the most desirable state of standard health.

Five men were transferred to the Garrison Hospital at Bellary on the 9th December 1873, agreeably with G. O. C. C., No. 103, of the 1st December 1873, preparatory to its march.

One Subadar and fifteen men of the regiment were invalided during the year and four men proceeded to their native countries on sick leave. Two men died out of hospital during the year, *viz.*, one at Bangalore, on the 23rd February, of valvular disease of heart, the other on the 27th August at Secunderabad, cause unknown.

Deputy Surgeon-General Ranking inspected this corps on the 8th October 1873, and reports as follows :—

Barracks.—The lines are as formerly reported. Houses irregularly built and drainage entirely by natural means ; site low. Indeed, if a cavalry corps is to continue to garrison this station, new lines are, I consider, essential ; conservancy is duly attended to, all refuse being daily removed. Barracks.

Sanitary condition of all buildings.—The sanitary condition of public buildings, as guard-rooms, cells, &c., is good. The only public latrine is that for the followers, which is with difficulty kept clean. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—Much prickly-pear bush has been eradicated, and the village of Dungerhutty near the lines has been brought within municipal limits, and its sanitary condition has, under municipal action, been very much improved. Conservancy of the neighbourhood.

Hospital.—The old hospital reported last year as unsafe has been razed to the ground. The sick are now accommodated in the newer building which was erected as a "Followers'" Hospital, and the dispensary was removed to a vacant Staff Sergeant's quarters. The accommodation of the hospital has sufficed for the small number of sick. The hospital is clean, well ventilated, and drained ; its sanitary conditions in every point satisfactory. Hospital.

4th Regiment Native Infantry.

Station—Bellary.

Arrived from Secunderabad 24th December 1870 and 15th March 1871.

Average strength	690
Do. present	635
Admissions	311
Daily sick	13
Deaths in hospital	4
Do. out of hospital	1
Pensioned	10
Sick leave	13

The following return shows the rates of sickness deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Secunderabad	30·47	1·49	·86	·59	...
1871 ...	Bellary	47·16	2·53	1·59	1·59	1·15
1872 ...	Do.	47·26	2·25	·76	3·65	1·52
Average ...	.....	41·63	2·09	1·07	1·94	·89
1873 ...	Bellary	4·89	2·04	·72	1·44	1·88

The following medical officers were in medical charge of this corps during the year:—

Surgeon C. Little, M.D.
Do. D. F. Bateman.

The last-named medical officer reports as follows:—

Climate. *Climate.*—The climate of this station during the year has in every respect been healthy, chiefly owing, I should think, to equability of temperature; there are none of those extreme and sudden changes which excite fevers, dysentery, &c., in other stations. The hot season was rather prolonged this year owing to the failure of the early monsoon; the rainfall, although very small, has been about on average. The station has been remarkably free from epidemic disease for the past few years. I find patients who have suffered from fevers and chest affections severely in other stations recover rapidly and enjoy good health here. With very few exceptions the diseases among the men in this regiment were of a mild and tractable nature.

Marches. *Marches.*—The regiment has been stationary during the year.

Sepoy huts. *Sepoy huts.*—The huts in which the men and native officers reside are constructed of the black soil of the place, and are on this account constantly needing repair, especially during the rains, when large portions of the walls come away; to remedy this as far as possible bamboo matting is fixed on the walls on the weather side. The height of the huts is very inadequate for the number of residents in each, in many instances numbering six or eight. The doors are narrow and low, and, with the exception of round openings in the rear walls, no windows exist; in fact, they resemble most native dwellings. Number of tiled, thatched, and flat-roofed huts, 56, 18, and 679 respectively. Main and subsidiary streets 60 feet and 30 feet respectively.

Guard-rooms, &c. *Guard-rooms, &c.*—The quarter guard is ventilated by three doors and one window, which admit a sufficiency of air to the building; its superficial area is 639 feet, its cubic contents 6,077. Eighteen men sleep nightly in it. The bazaar and dhoby guard-rooms are also roomy and well ventilated. The huts are small, dark, and ill-ventilated; circular openings to ensure some ventilation, about nine inches in diameter, have been made in the rear walls of the huts, but even these are frequently found stuffed with old rags, &c., so adverse are these people to admitting fresh air into their houses. The drainage is now as perfect as surface drainage can be; storm-water passes freely from the lines, and there is no lodgment anywhere; tarred chatties are now used to receive slops from the courtyards, and the greatest care is adopted to see that these are kept free from foul smells.

Barrack-rooms, cells, &c., have been white-washed during the year.

Nuisance. *Nuisance.*—There are public latrines, but small portions of the courtyards of the huts are screened off as privies; in these solid and fluid excreta used generally be passed on the ground, thereby causing to a certain extent fouling of the soil owing to these percolations; to remedy this the soil had to be dug out occasionally and fresh earth beaten down, but now we have got the floor of these privies paved and tarred and also the walls for a couple of feet in height. Tarred chatties are also used, so that no fouling of the floor takes place. Filth is regularly removed from these daily.

Water-supply. *Water-supply.*—Water has been procured from two tanks and two wells; it has been abundant and of good quality except for a few weeks previous to the rains, when the tanks became shallow and the water somewhat turbid.

Sanitary arrangements. *Sanitary arrangements.*—The whole sanitary state of the barracks, lines, &c., has been most carefully attended to, which is proved by the absence of any epidemic and the excellent health enjoyed by both the sepoys and their families.

Diet. *Diet.*—Provisions have been cheap and plentiful. Vegetables were abundant, and always exposed in large quantities for sale at moderate rates in the regimental bazaar.

Average amount of rice-batta for this year has been Rupees 1-6-10. Price of third-sort country rice, 7¼ measures per rupee.

Judging by the appearance of the men, I should say that the food used by them is of sufficiently nutritive character and suited to the duties and climate. The bazaar supplies are constantly inspected and found to be of fair quality

Clothing. *Clothing.*—The clothing of the men has been of woolen material and suited to the climate of the station; for a few months during the hot weather white jackets were substituted for the tunics.

Foot-soreness *Foot-soreness.*—There has been as usual a good number of cases of foot-soreness from boots; the only remedy that suggested itself was excusing the men from wearing boots until the sores healed, and that more care be paid to the fitting of the boots.

Duty and exercises. *Duty and exercises.*—The duties of the men have been of the same nature, *viz.*, guard-mounting, brigade drills, and evening drills, which do not appear to have exercised any unfavorable influence on the health of the men.

Total parades for the year about 240, average 1¼ hour each.

Average number of nights in bed per week, 3¼ in 5¼.

Drill.—The drills take place in the morning from ½ to 6 till 7 o'clock, and in the evening from 5 to 6. They have excited no deleterious influence on the health of the men, and have not been of a nature to call for any recommendations on the matter. Drill.

Exercises.—There is no public gymnasium in the regiment, but some of the men practise in private. The officers have got up a cricket club and every encouragement is given to the men to play, but few of them care for it. Exercises.

Lock-up rooms and prison cells.—Sanitary condition of the cells has been satisfactory; cubic space and ventilation given above. Lock-up rooms and prison cells.

Vaccination.—Vaccination has been kept up steadily in the corps; number of vaccinations during the year 380, of which 301 were successful and 79 unsuccessful. Vaccination.

No case of small-pox occurred in the regiment. The number vaccinated includes families.

Diseases.—There has been no epidemic disease either among the men or followers. The most prevalent disease was febricula, 65 cases having occurred; the cases were mostly mild and tractable. There has been no cholera, little diarrhœa, or dysentery, and none of the diseases can be attributable to an insanitary state of lines, &c. Diseases.

There were three admissions for phthisis pulmonalis and one death. The first man was 36 years of age, disease long standing, and death occurred. The second man was 34, also of long standing; this man was pensioned The last case occurred in a young man of only 8 years' service; he went on sick leave and died. These men were stated to be of healthy parentage, and no cause can be assigned to account for the origin of this disease.

Ventilation of the hospital.—The ventilation of the hospital is good in every respect; there are 16 ventilators independent of numerous doors and windows; it was not found necessary to make a representation regarding it. Ventilation of the hospital.

There has been no overcrowding in hospital.

Drainage and latrines.—The drainage round the hospital is natural, and there is sufficient slope in the surface to prevent lodgment of water anywhere. There is a small latrine connected with the back verandah of the hospital, which is objectionable owing to its being to windward of the ward. An old latrine isolated from the hospital building is generally used. Dry earth and tar are freely used. Drainage and latrines.

Hospital water-supply.—Regimental puckallies bring water to the hospital; this is drawn from wells in the vicinity, and is of good quality. Hospital water-supply.

General conclusions.—The general sanitary condition of the regiment has been good. The drainage, water-supply, &c., have also been satisfactory. Health of men good; no outbreak of epidemic disease among them; no excess of mortality or sickness. General conclusions.

Deputy Surgeon-General Ranking inspected this corps on the 9th October 1873, and reports as follows :—

Barracks.—I have no changes to report in the general arrangements, accommodation, &c., of the lines of this regiment. They are kept very clean, conservancy is very carefully attended to, and the drainage is as good as it can be made under the existing system. Impervious masonry or V-section stone-drains will alone ensure proper drainage and sewerage. The courtyards of huts are damp and slippery owing to recent heavy rains, and the escape of roof and waste waters is not so good as it might be in many instances. Barracks.

Sanitary condition of all buildings.—Sanitary condition of all public buildings good. There are no public latrines. The small domestic latrines in the courtyards of huts are cleaned daily by the regimental conservancy establishment. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—The immediate neighbourhood of the lines is kept very clean; more prickly-pear bush has been eradicated. Conservancy of the neighbourhood.

Hospital.—The hospital accommodation is as described in former reports. The accommodation is ample, and there has been no overcrowding. Ventilation is good, as also drainage and water-supply. The general conservancy of the hospital is well cared for. The building is clean, and the general administration creditable to the medical officer in charge. Hospital.

21st Regiment Native Infantry.

Station—Bellary.

Arrived from Jubbulpore 29th November 1873.

Average strength	696
Do. present	666
Admissions	380
Daily sick	15
Deaths in hospital	1
Do. out of hospital	...
Pensioned	...
Sick leave	1

The following return shows the rates of sickness, deaths and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Jubbulpore	83·83	1·35	2·11	3·92	2·56
1871 ...	Do.	42·49	1·95	·42	...	·14
1872 ...	Do.	41·28	1·78	·14	·14	·85
Average...	.....	55·86	1·69	·89	1·35	1·18
1873 ...	Bellary	57·05	2·25	·14	...	·14

The following medical officers were in charge during the year :—

Surgeon D. R. Thompson.
Do. E. Levinge.
Surgeon-Major J. R. Theobalds.

The second-named medical officer reports as follows :—

Marches. *Marches.*—The regiment arrived by wings at Bellary on 29th November 1873 and 21st December 1873 from Jubbulpore, where it was stationed for nearly five years, from January 1869 to 14th December 1873. A small detachment—six privates and one naigue—was stationed at Butchamaree up to 30th November 1873, changed every month. Another small detachment—six privates and one naigue—was stationed at Shagapore from 1st November 1872 to 24th February 1873.

Disease. *Disease.*—The health of the regiment has been remarkably good throughout the year. The average strength of the regiment throughout the year has been 668·68 ; 380 admissions into hospital, 57·08 per cent. ; one death, 15 per cent.

Eleven cases were pensioned, one case sent away on sick certificate.

Malaria has been the chief cause of sickness; 106 cases were admitted; all usually readily yielded to a purgative of calomel and castor oil on admission, followed by five-grain doses of quinine given before the hour the fever was expected.

There were 55 cases of catarrhal ophthalmia admitted; readily yielded to a purgative on admission and four grains of solution of nitrate of silver to the affected eyes morning and evening, and alum pads during the day. There were eighteen cases of dysentery, which were treated by twenty or thirty minim doses of laudanum on admission, followed by large doses of ipecac uanha every six or eight hours, and afterwards mineral acid opiates and good nourishment.

A case of phthisis proved fatal on 7th March in a sepoy who was admitted 5th February in a very weak, emaciated state, with a husky voice, cough, and with marked physical signs of consumption in both lungs, purulent expectoration, hectic fever followed by night sweats, diarrhœa, exhaustion, and death.

HYDERABAD SUBSIDIARY FORCE.

Average strength	3,273
Do. present	3,227
Total admissions	3,547
Daily sick	124
Deaths in hospital	20
Do. out of hospital	10
Pensioned	45
Sick leave	26

The following return shows the rates of sickness, deaths and invaliding as contrasted with previous years :—

Year.	Rate per cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	50·91	1·94	1·08	1·27	...
1871	78·23	2·25	·99	1·87	1·29
1872	96·72	3·92	1·28	1·76	1·71
Average	75·28	2·70	1·11	1·63	1
1873	109·91	3·84	·91	1·37	·79

The following corps were serving in the division on the 31st of December 1873:—

1st Regiment Light Cavalry.
3rd do. Light Infantry.
6th do. Native Infantry.
29th do. do.
40th do. do.
Detachment Sappers and Miners.

Constitution of the force.—There has been no change during the past year in the constitution of the native portion of the Hyderabad Subsidiary Force. Constitution of the force.

At the end of 1872 the 1st Light Cavalry, the Left Wing of the 6th Native Infantry, the Right Wing of the 40th Native Infantry, and the K Company, Sappers and Miners, had not yet joined.

These troops arrived on the following dates:—

Left Wing, 6th Regiment Native Infantry, 9th January 1873.
K Company, Sappers and Miners, 15th January 1873.
1st Light Cavalry, 6th February 1873.
Right Wing, 40th Native Infantry, 18th February 1873.

All the reliefs in the end of 1872 and beginning of 1873, comprising the moves of six regiments and two companies of Sappers and Miners, were fortunately accomplished without the appearance of any epidemic disease or unusual sickness of any kind.

Lines.—The only changes made during the year in any of the lines occupied by the native troops have been the building of new huts, tiled and laid out in broad, regular streets, for the horsekeepers and grasscutters of the 1st Light Cavalry, and the demolition, still in progress, of the old European Barracks in the lines of the 29th Regiment at Begumpett. The conservancy of all the lines is carefully attended to, and is as good as the means at disposal admit. The drainage is natural, aided by side channels cut in the ground. The great cost of stone-faced drains has prevented their introduction. The public latrines are kept clean by daily removal of excreta, and are as free from offensive smell as can be expected without the use of dry earth or other deodorants. Lines.

Hospitals.—No change has been made in any of the hospitals. They are all clean and in good repair. Accommodation has been sufficient, except during about half the year, in the hospital of the 3rd Light Infantry, and latterly in that of the 40th Regiment Native Infantry, where it has been supplemented by the provision of tents. Hospitals.

Hospital latrines.—New latrines of ample size have recently been built for the hospitals of the 3rd, 6th, and 40th Regiments; and all the native hospitals here are now well provided in this respect. Dry conservancy is in use in all so far as means permit. I would again beg to recommend a much more liberal allowance of coal-tar being provided for these latrines. The present allotment is quite insufficient to admit of this deodorant being freely used so as to keep the latrines in a thoroughly satisfactory state. Hospital latrines.

Guard-rooms, cells, &c.—The guard-rooms, cells, Staff Sergeants' quarters, &c., are clean and in good order. Guard-rooms, cells, &c.

Duties and employments.—The duties and employments of the troops are those usual in garrison, *viz.*, drills, guards, escorts, and brigades. The Sappers are also employed on public works, especially road-making and the planting of trees. There is no reason to think that these duties and employments have had any injurious influence on health. Duties and employments.

Drainage and conservancy.—The drainage and conservancy of the station generally are carefully attended to by the Assistant Quartermaster-General and the Cantonment Com- Drainage and conservancy.

mittee. Drainage is naturally good for the most part. The improvement of the surface drainage of Trimulgherry has been long under consideration, but no scheme has yet been put in force.

Water-supply.

Water-supply.—The water-supply of the 2nd Infantry Regiment at Trimulgherry has been completed, and is ready for use from the 1st April next, when funds for working it will be available. It has been recommended that all wells used for drinking purposes should be covered in and provided with lifting power; and this system, it is understood, will be put in force as soon as funds can be provided. A scheme has been under consideration for the supply of water to the town of Secunderabad from the Hoossain Saugor Tank, near the western extremity of the bund. A sample of the water has been analysed by Honorary Assistant Surgeon Harvey, whose report is highly favorable. The scheme, however, is at present in abeyance pending orders from the local Government.

Seasons.

Seasons.—The chief seasonal characteristics of the year under review were an unusually mild, hot season, followed by a scanty monsoon. The total rainfall registered at the Meteorological Observatory here was only 21·83 inches, being 5·46 inches below the average. Throughout the Nizam's dominions generally, however, the rainfall seems to have been better than at this station.

Health of civil population.

Health of civil population.—The year was a very healthy one as regards the civil population, amongst whom the registered deaths were 964, against 1,454 in the previous year. In that year, it is true, there were 56 deaths from cholera, which, with the exception of three isolated fatal cases, was wholly absent in 1873. Still, even allowing for this, the difference between the two years is striking, the ratio per mille, estimating the population at 53,000, being 27·43 for 1872 and only 18·19 for 1873. I was inclined to suspect some error in the figures of the latter year, but the Cantonment Magistrate has kindly tested them at my request and found them correct.

Provisions.

Provisions.—From the effects of the abundant monsoon of 1872 provisions were plentiful during 1873, and the prices of most articles, especially rice and wheat, ruled considerably lower in the latter than in the former year.

The subjoined table shows the average prices for 1873 of some of the principal food articles as contrasted with the rates of 1872. The weights are Avoirdupois.

Per Halli Sicca Rupee.	1873.		1872.	
	lbs.	oz.	lbs.	oz.
Rice, third sort	25	15	17	0
Wheat, first sort	25	5	16	3
Jawarry	19	0	30	0
Toer dholl	18	5	16	0
Salt, common	17	0	16	14
Ghee	2	0	2	5
Bajrah	22	0	38	0

Statistics of sickness and mortality contrasted with those of the two previous years.

Statistics of sickness and mortality contrasted with those of the two previous years.—As the Regimental Annual Returns of Sick accompanying this report do not afford the requisite data for comparison of the sickness and mortality among the native troops *actually occupying Secunderabad* during the year under review with those of previous years, the table on the following page has been constructed for that purpose.

It comprises for 1873 the statistics of the following corps:—

3rd Regiment Light Infantry, whole year.
29th do. Native Infantry, do.
G and H Companies Sappers and Miners, whole year.
K Company Sappers and Miners, 15th January to 31st December.
1st Regiment Light Cavalry, 6th February to 31st December.
6th do. Native Infantry, Head Quarters and Right Wing, 1st January to 8th January.
6th do. do. whole Regiment, 9th January to 31st December
40th Regiment Native Infantry, Head Quarters and Left Wing, 1st January to 17th February.
40th do. do. whole Regiment, 18th February to 31st December.

These statistics are compared with those of the native troops actually occupying this station in 1871 and 1872.

NATIVE TROOPS

(*including Native Commissioned Officers.*)

—	1873.	1872.	1871.
Average annual strength	3231·18	3589·67	3485·13
Admitted sick	3547	3098	2668
Died in hospital	20	47	29
Do. out of hospital	12	8	4
Average daily sick	124·24	109·49	79·52
Ratio per 1,000 *of Average Strength.*			
Admitted	1097·74	863·03	765·53
Died in hospital	6·18	13·09	8·32
Do. out of hospital	3·71	2·22	1·14
Average daily sick	38·45	30·50	22·81

Diseases.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Fevers, intermittent and remittent	1,892	4	1,794	14	1,489	3
Do. continued and typhoid	1	...	1	...	7	...
Small-pox	1	...	6	3	2	...
Other eruptive fevers	9	...	41	...	20	...
Diarrhœa	63	1	42	2	68	1
Dysentery	53	...	70	5	58	4
Cholera	...	...	5	3	5	3
Syphilis and gonorrhœa	41	...	37	...	44	...
Phthisis	20	6	7	2	5	3
Delirium tremens	1	...	...	...	1	1
Other diseases of nervous system	43	...	34	4	27	3
Diseases of respiratory system	148	3	69	1	47	4
Hepatic diseases	20	2	14	1	8	...
Sun-stroke and heat apoplexy	...	...	1	1	1	...
Violence and accidents	264	...	120	2	125	...
All other diseases	991	4	857	9	761	7
Total ...	3,547	20	3,098	47	2,668	29

It will be observed that the ratios of admissions and of average daily sick per 1,000 of average strength are higher; but the ratio of deaths in hospital lower for 1873 than for either of the two preceding years.

Increase in sickness due mainly to acclimatized corps having been replaced by unacclimatized ones.—That the increase in the amount of sickness is almost wholly owing to acclimatized corps having been replaced by unacclimatized ones will be apparent from the following table, which shows the total admissions and their ratio per cent. to average strength for each of the different corps in 1872 and 1873 :—

Increase in sickness due mainly to acclimatized corps having been replaced by unacclimatized ones.

Corps.	1872.		1873.	
	Total Admissions.	Ratio per 100 of Average Strength.	Total Admissions.	Ratio per 100 of Average Strength.
3rd Regiment Light Infantry	1,370	194·32	1,150	164·05
29th do. Native Infantry	311	41·13	416	58·84
G and H Companies Sappers and Miners ...	465	216·28	380	179·24
D Company Sappers and Miners	105	100·95	...	...
K Company do.	...	...	294	260·17
4th Regiment Light Cavalry	98	30·81	...	...
5th do. Native Infantry	369	50·96	...	...
24th do. do.	341	47·42	...	...
1st do. Light Cavalry	...	...	136	60·44
6th do. Native Infantry	...	...	427	63·56
40th do. do.	...	...	744	119·77

Thus the relieved corps, *viz.*, 4th Light Cavalry, 5th and 24th Regiments Native Infantry, and the D Company Sappers and Miners, gave in 1872 an aggregate of 906 admissions, which was in the ratio of 48·06 per cent. of their aggregate average strength, while the relieving corps, *viz.*, 1st Regiment Light Cavalry, 6th and 40th Regiments Native Infantry, and K Company Sappers and Miners, gave 1,601 admissions, which was in the proportion of 99·37 per cent. to their aggregate average strength during 1873.

As regards the corps which occupied this station during the whole of both years, *viz.*, the 3rd Regiment Light Infantry, the 29th Regiment Native Infantry, and the G and H Companies of Sappers and Miners, the aggregate amount of sickness in proportion to strength was eight per cent. less in 1873 than in 1872.

Statistics of fever.

Statistics of fever.—The most prevalent disease was, as usual, fever of a more or less distinctly-marked intermittent type, in a few cases becoming remittent. The admissions under this head in 1873 however, notwithstanding the arrival of so many new corps, only exceed by 100 those of 1872. This is due especially to the considerable decrease (362) in the admissions for this disease in the 3rd Regiment Light Infantry. In the 29th Regiment Native Infantry there was an increase of 122, and in the detachment of Sappers and Miners an increase of 25. This last increase is due altogether to the K Company, newly arrived, as will appear hereafter. In the G and H Companies there was a marked decrease (140).

The subjoined tabular statement exhibits the admissions from *fever alone*, and their ratio per cent. to average strength for the corps comprized in the preceding table:—

Corps.	1872.		1873.	
	Admissions from Fever alone.	Ratio per 100 of Average Strength.	Admissions from Fever alone.	Ratio per 100 of Average Strength.
3rd Regiment Light Infantry	1,097	156·71	735	104·84
29th do. Native Infantry	106	14·02	228	32·24
G and H Companies Sappers and Miners ...	276	128·37	136	64·15
D Company Sappers and Miners	43	41·34	...	...
K do. do.	...	...	208	184·07
4th Regiment Light Cavalry	43	13·52	...	...
5th do. Native Infantry	68	9·37	...	...
24th do. do.	156	21·75	...	...
1st do. Light Cavalry	...	...	64	28·44
6th do. Native Infantry	...	...	144	21·95
40th do. do.	...	...	377	61·10

For the whole native force actually occupying Secunderabad the percentage of admissions to average strength from fever alone was—

In 1871	42·92
„ 1872	49·97
„ 1873	53·34

The proportion borne by admissions from fever to admissions from all causes was—

In 1871	1 to 1·7
„ 1872	1 to 1·72
„ 1873	1 to 1·87

And the proportion of deaths from fever to deaths from all causes—

In 1871	1 to 9·66
„ 1872	1 to 3·35
„ 1873	1 to 5·00

Special prevalence of fever in 3rd Regiment Light Infantry and Detachment Sapper and Miners.

Special prevalence of fever in 3rd Regiment Light Infantry and Detachment Sappers and Miners—The 3rd Regiment Light Infantry and the Detachment of Sappers and Miners have again, during the year under review, suffered more from fever than other native corps. As regards this special prevalence I have nothing to add to what I wrote last year on the same point; but the Medical Officer of the 3rd Light Infantry has submitted an interesting and exhaustive special report on the subject, which is herewith forwarded. Of the several possible causes suggested by him I am inclined to give most weight to the previous prolonged residence of the men in moist and relaxing climates. The local sanitary conditions mentioned are mostly not peculiar to the lines of any one regiment here. Be the cause, however, what it may, the fact remains that these lines have for years past been considered feverish and unhealthy, and it would doubtless be desirable on sanitary grounds that they should be abandoned. In my last year's report I mentioned that it was in contemplation, on strategic grounds, to remove the corps occupying the Chickulgooda lines to some

locality within the embankment of the railway, but I am now informed that this project has, for the present, been given up.

Classification of fevers.—With reference to Dr. McNally's remarks in Section III. of his special report on the classification of fevers, I may mention that in all my annual reports cases of so-called "febricula" have been included under the head of "fevers, intermittent and remittent," it being evident from the descriptions given by medical officers that they differed, as a rule, from "ague" in degree only and not in kind. Classification of fevers.

Fever statistics of Detachment Sappers and Miners.—As regards the Sappers and Miners the subjoined table will show that the special prevalence of fever in 1873 was chiefly due to the arrival of the K Company in the beginning of the year. Fever statistics of detachment Sappers and Miners.

Sappers and Miners.	1872.			1873.		
Companies.	D.	G.	H.	G.	H.	K.
Strength	104	107	108	107	105	113
Total admissions	105	228	237	173	207	294
Admissions for fever	43	148	128	40	96	208
Percentage total admissions to strength.	100·96	213·08	219·44	161·67	196·19	260·17
Do. admissions for fever to strength	41·34	138·30	118·51	36·44	91·42	184·07

The K Company came from Dowlaishweram, where it had been stationed about nine months. Before this it had been at Bellary for about a year, and before that at Lakady, in Wynaad, where it is said to have suffered severely from fever. On its arrival here the G Company went into the temporary lines near Bolarum vacated by the D Company; and the reduction in the number of fever cases from 148 in 1872 to 40 in 1873 is remarkable.

Statistics of mortality.—The mortality amongst the native troops in Secunderabad was much lower during the year under review than during the previous year, the deaths in hospital having been 47 in 1872 and only 20 in 1873. Statistics of mortality.

The following table shows the percentage of deaths in hospital to strength and to admissions for each corps during the period it occupied this station:—

1873.

Corps.	Deaths in Hospital.	Percentage Deaths to Strength.	Percentage Deaths to Admissions.
1st Regiment Light Cavalry	...	...	...
3rd do. Light Infantry	5	0·71	0·43
6th do. Native Infantry	4	0·61	0·93
29th do. do.	2	0·27	0·48
40th do. do.	9	1·45	1·21
Sappers and Miners	...	...	...
Whole Native Force occupying Secunderabad ...	20	0·61	0·56

Diseases under which casualties occurred.—The diseases under which the above casualties occurred were as follow:— Diseases under which casualties occurred.

Diseases.	Deaths.	Diseases.	Deaths.
Febris, remittens	3	General debility	1
Ague	1	Pleuritis	1
Phthisis	6	Pneumonia	1
General dropsy	2	Hæmorrhois (suspected hepatic abscess)	1
Hepatitis	2		
Diarrhœa	1		
Asthma...	1	Total ...	20

The deaths "out of hospital" *in the station* were three in all, *viz.*, two from drowning (suicide) and one from heart disease.

Other statistics of the year.

Other statistics of the year.—There is little in the other statistics of the year calling for special remark except the unusual number of cases of phthisis. Of the 20 admissions under this head, 10 (with 1 death) occurred in the 3rd Regiment Light Infantry, 5 (with 2 deaths) in the 6th Native Infantry, 4 (with 3 deaths) in the 40th Native Infantry, and 1 in the 1st Light Cavalry. Of the 10 admissions in the 3rd Light Infantry, 2 were readmissions. The medical officer of that corps in his report ascribes the cases in his regiment to the same debilitating influences which have rendered the men specially liable to fever.

In diseases of the respiratory system there was also a considerable increase in admissions as compared with last year, but the mortality was rather small in proportion.

European Commissioned Officers.

European Commissioned Officers.—Amongst European Commissioned Officers of the native force, with an aggregate average strength of 70·75, there were during the year 28 admissions on the sick report, and 2 deaths—one (in the 3rd Light Infantry) from apoplexy, and one (in the 40th Native Infantry) from general dropsy.

Cholera.

Cholera.—No cases of cholera occurred among the troops, either European or Native, in this station during the year under review. There were three isolated fatal cases in Secunderabad town in January 1873 as mentioned in paragraph 17 of my report on the outbreak of the disease here in November and December 1872. One death was reported in the city of Hyderabad on the 27th of February, and on the 19th and 31st of May reports were received of the presence of the disease in two villages near Lingasagoor; nine deaths only were reported. With these exceptions, the Nizam's dominions were wholly free from cholera during 1873.

Dengue.

Dengue.—Two cases of dengue were reported amongst the European Troops—one in January and one in July; but, as the disease did not spread on either occasion, it seems somewhat doubtful whether the diagnosis in these cases was correct. No case occurred either among the native troops or the civil population here.

Small-pox.

Small-pox.—The native troops and families were also free from small-pox during 1873, with the exception of two cases, at the very close of the year, in the 40th Regiment Native Infantry. One of these cases occurred in the person of a sepoy who had both been vaccinated and had small-pox before; the other in the child of another sepoy This child had been vaccinated at Saugor, but with "doubtful" result.

Vaccination, regimental.

Vaccination, regimental.—Vaccination has been carried on steadily during the year, though, as most of the regiments were already in great measure protected at the close of 1872, the number of operations performed is not so large as it was in that year.

The number of vaccinations by medical subordinates in the station in 1873 was 971, of which 866, or 89·18 per cent., were successful.

In addition to this the female vaccinator recently sent from Madras vaccinated in November and December 388 women and children (chiefly the former) among the families and followers of the 29th and 6th Regiments Native Infantry and the Sappers and Miners. Of these operations, 309, or 79·63 per cent., were successful.

The vaccinatrix has since then completed the vaccination of the women in the 3rd Light Infantry and 40th Native Infantry, and she has now been sent to work in the lines of the 1st Light Cavalry, where, although the women all profess to have either marks of small-pox or of vaccination, she will, no doubt, find many still insufficiently protected.

The vaccination has worked very well, and, by gaining ready access to the women in regimental lines, has been of most essential service to the cause of vaccination.

I think that all the Native Infantry Corps here and the Sappers and Miners may now be considered as fully protected (there being only a few children, either sickly or under age, still to be vaccinated, with the exception of the 6th Regiment Native Infantry, where there are 224 men needing vaccination or revaccination. The Medical Officer of this corps applied to the Officer Commanding in October last to have these men sent for vaccination, but was informed that they could not be spared from duty until the prescribed "musketry course" is finished, which, it is expected, will be some time in March next. They will then, it is hoped, be all vaccinated.

By public vaccinators.

By public vaccinators.—The number of operations performed by the public vaccinators in 1873 was 3,141, being 1,080 above the numbers of 1872. Of these operations, 2,917, or 92·86 per cent., were successful.

Amongst the civil population, estimated, as before mentioned, at 53,000, six deaths from small-pox were registered during the year.

Lock Hospital.

Lock Hospital.—The working of the Lock Hospital during the year has been very satisfactory, especially as regards the amount of venereal disease among the European Troops, as will be seen by the following tabular statement in which the figures of 1873 are contrasted with those of 1872.

There are two causes which may have operated in producing the decrease shown—first, the average stay of the women in hospital was considerably longer in 1873 (26 days) than in 1872 (19·9 days); and, secondly, the examination for venereal affections of European soldiers newly arriving at the station has, I am informed, been more strictly carrried out. There is no other apparent cause that I can suggest.

Admissions into Lock Hospital, Secunderabad, in 1873.

Primary syphilis...	42
Secondary do.	2
Gonorrhœa	64
Total ...	108

Admissions from Venereal Diseases among European Troops in 1873.

Primary syphilis...	82
Secondary do.	51
Gonorrhœa	137
Total ...	270

Admissions into Lock Hospital, Secunderabad, in 1872.

Primary syphilis	112
Secondary do.	8
Gonorrhœa	27
Total ...	147

Admissions from Venereal Diseases among European Troops in 1872.

Primary syphilis	228
Secondary do.	78
Gonorrhœa	182
Total ...	488

Further reduction in cost of establishment.—Since 1st April 1873 the cost of the establishment of the Lock Hospital has been further reduced by the entertainment of a female cook on Rupees 5 a month, instead of a male one on Rupees 6-8-0, and of a waterwoman on Rupees 5, instead of a bheestie on Rupees 8 monthly, the saving thus effected being Rupees 4-8-0 a month, or Rupees 54 annually. The establishment now consists wholly of females. Further reduction in cost of establishment.

European and Native details.—There is nothing calling for remark in the statistics of the small bodies of European and Native "details." European and Native details.

The percentage of admissions to strength among the Europeans was 48·43, and no death occurred.

Among the native details the percentage of admissions to strength was 33·84, and one death occurred from "jaundice and general debility."

Conservancy of Secunderabad town.—The conservancy of the town of Secunderabad is carefully attended to, and sanitary improvements are steadily progressing as means permit. Among the works of last year was the opening out of a large area by the purchase and removal of the old distillery, the neighbourhood of which was formerly very unhealthy. Six new public latrines were built during the year, and six more are in course of construction. A main drain in Chutnee Bazaar is also in course of construction, and a Dhobee Ghaut has been built near the Hoossain Saugor Tank. Conservancy of Secunderabad town.

Of the rubbish deposited on the south of the town, the readily-combustible portion is now being burnt.

Further improvements will follow as funds become available.

1st Regiment Light Cavalry.

STATION—SECUNDERABAD.

Arrived from Kamptee 6th February 1873.

Average strength	231
Do. present	231
Admissions	161
Daily sick	5
Deaths in hospital	1
Do. out of hospital	...
Pensioned	4
Sick leave	4

The following return shows the rates of sickness, deaths and invaliding as contrasted with previous years :—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Kamptee	67·01	2·10	1·05	4·56	1·05
1871 ...	Do.	84·06	1·99	·38	...	...
1872 ...	Do.	106·12	2·85	·40	...	...
Average ...	.....	85·73	2·31	·61	1·52	·35
1873 ...	Secunderabad	69·69	2·16	·43	1·73	1·73

The following medical officers have been in charge during the year :—

Surgeon-Major Wilkins.
Do. Williams.

The last-named reports as follows :—

Climate. *Climate.*—The Cavalry lines and station of Secunderabad have been so frequently described that it would be a work of supererogation to say anything on these subjects. The lines occupied by the regimental grasscutters and horsekeepers have been much improved. The wretched warren of huts which we found on our arrival have been removed and regularly built ; tiled huts have replaced them ; about half the requisite number are finished ; the rest will soon be compiled.

Marches. *Marches.*—The regiment marched from Kamptee on the 2nd January 1873 and arrived at this station on 6th February 1873.

A full marching report was sent in on our arrival.

Sepoy huts. *Sepoy huts.*—Drainage and ventilation good.

Nuisance. *Nuisance.*—Latrines and urinals on the Secunderabad standard plan ; these should be roofed and provisions should be made for frequent removal of the earthen floor.

Water-supply. *Water-supply.*—Good.

Sanitary arrangements. *Sanitary arrangements.*—No barracks, except for the storage of arms, saddles, &c.

Diet. *Diet.*—Provisions cheap and sufficient in quantity. Vegetables not abundant in the hot weather. Compensation for dearness of provision paid to troops.

Clothing. *Clothing.*—The clothing of the regiment has been sufficient and adapted to the climate.

Foot-soreness. *Foot-soreness.*—None.

Duty and exercises. *Duty and exercises.*—The usual duties of a Cavalry Regiment, which have had no injurious effects on the health of the men.

Number of nights per week the men have had in bed, 2¼.

Drill. *Drill.*—Drill takes place usually in the morning early for an hour or an hour and-a-half. Stables are attended morning and evening. They have had no injurious effect on the health.

Vaccination. *Vaccination.*—Vaccination has been carefully kept up. No small-pox during the year. Seventy-six cases vaccinated in the regiment, out of which 21 men revaccinated.

Diseases. *Diseases.*—The health of the 1st Regiment Madras Light Cavalry has been good during the past year. One hundred and sixty-two cases have been admitted out of an average strength of 225 ; out of the above number admitted, 83 were of ague ; these cases were not obstinate as a rule ; and in one case the fever became remittent and the patient died exhausted.

Officers have been admitted 16 times during the year ; nothing particular about them to be noticed.

Ventilation of the hospital. *Ventilation of the hospital.*—The Cavalry Hospital is a large, well-ventilated building ; it is not overcrowded.

No overcrowding.

Condition of the drainage and latrines. *Condition of the drainage and latrines.*—Good.

Hospital water-supply. *Hospital water-supply.*—Good.

General conclusions. *General conclusions.*—I am of opinion that the 1st Regiment Madras Light Cavalry has enjoyed very good health during the past year.

Deputy Surgeon-General Barclay inspected this corps on the 6th October 1873, and reports as follows :—

Barracks. *Barracks.*—The lines of this regiment are clean and in good order.

The lines of the horsekeepers and grasscutters are being entirely reconstructed, the huts laid out in broad regular streets and tiled. This will be a great improvement on the former lines.

Drainage is natural by configuration of the ground, aided by side channels cut in the soil.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—The public latrine is very clean, and has a good approach. It is an uncovered enclosure, pucka built, in good condition. Excreta removed daily and buried at a distance. Coal-tar not in use.

The guard-room, cells, school-room, Staff Sergeant's and Apothecaries' quarters are clean and in good repair.

There are no cess-pools or foul drains.

Diet.—Native soldiers provide and cook their own food. The average prices of ordinary food articles during the year have been— Diet.

	Per. H. S. Rupee. lbs.	oz.
Rice	23	12
Wheat	23	12
Jowary	36	0
Dholl	16	6
Salt, common	17	9
Ghee	2	2
Bajrah	43	13
Mutton	5	7

Average rate of compensation to sepoys for dearness of rice—1st January to 30th September 1873—Government Rupees 2-9-3.

Water-supply.—From wells; quality indifferent. The well chiefly used by the Mahomedans in a long, disused burial-ground has often been objected to on account of its site, and was unfavorably reported on by the Chemical Analyst, but is much liked by the men. Water-supply.

There are no games or amusements in use in this regiment.

Duties.—The duties have been rather heavy in consequence of the regiment being considerably below strength, but have had no prejudicial effect on health. Duties.

Conservancy.—The conservancy of the neighbourhood of lines and hospital is satisfactory. Conservancy.

Hospital.—No change has been made in the hospital during the year. It is clean and in good repair; accommodation ample; ventilation good; drainage natural and sufficient. The latrine is in excellent order, of ample size, and well ventilated. Dry-earth and coal-tar in use. Hospital.

Water is brought by puckallies from wells in the lines. There are no cess-pools or foul drains.

Lavatories and baths.—1 Bathing tub. 1 Foot tub. 1 Hip bath. All in good order. Lavatories and baths.

3rd Regiment Light Infantry.

STATION—SECUNDERABAD.

Arrived from Madras 7th and 18th February 1871.

Average strength	687
Do. present	687
Admissions	1,131
Daily sick	34
Deaths in hospital	4
Do. out of hospital	4
Pensioned	18
Sick leave	10

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Madras	49·27	2·16	·86	4·46	...
1871	Secunderabad	130·29	2·82	·38	·77	1·15
1872	Do.	194·92	5·21	1·59	1·30	4·77
Average	.....	124·82	3·39	·94	2·17	1·97
1873	Secunderabad	164·62	4·94	1·16	2·62	1·45

Surgeon C. J. McNally, M.D., was in medical charge of this corps during the year, and reports as follows :—

Climate. *Climate.*—During the past year the rainfall has been below the average, especially in this part of the station. The monsoon extended over a longer period than usual, thus keeping up a damp state of the atmosphere and of the soil favorable to the production of malaria, or at least, in some manner, of paroxysmal fevers. There is some fear of a drought next hot season.

Marches. *Marches.*—The regiment was stationary during the past year.

Sepoy huts. *Sepoy huts.*—The sepoys' lines are built upon a slope facing towards the north. There is much evidence to show that the position is not healthy. This subject has been treated at some length in a special report on fever in the 3rd Regiment Light Infantry in 1873, and I must refer to it for particular grounds of my opinion.

The ventilation of the guard-rooms and prison cells is sufficient, but that of the huts is very defective. The huts are very old, and are not built in conformity with present regulation. They are not constructed in such a manner as to be conducive to health.

With regard to ventilation and drainage, I must repeat my remarks of last year : "the ventilation of the huts is very bad, and the liquid sewerage is almost totally unprovided for; the solid portion is removed every morning and deposited at a distance." I do not know of any advisable method of improving the ventilation of the present huts without creating such draughts as would render "the cure worse than the disease." The subject of sewerage and drainage has been represented to the Commanding Officer and to the Deputy Surgeon-General, but nothing was done, as we were informed that "there were no funds available for the purpose."

Nuisance. *Nuisance.*—There has been a very great nuisance throughout the period of the south-west monsoon from the place where the filth and sweepings of the town of Secunderabad are deposited. It was brought to the notice of the Deputy Surgeon-General and of the Commandant of the regiment, and, through both of them, to that of the Cantonment Magistrate. The conservancy of the place alluded to is very bad, and I regret to state that very imperfect measures have been taken for its improvement. It is no doubt a difficult matter to deal with, and it could be properly dealt with only by a very considerable expenditure of money. I am of opinion that the nuisance alone would be ample cause to justify the abandonment of the Chilkalgudam Native Infantry Lines as a residence for troops, and there are many other reasons to render this step advisable.

Water-supply. *Water-supply.*—Water has been sufficient in quantity during the year 1873.

During the greater portion of the year the regiment was supplied from three wells (Nos. 111, 112, and 114). At my recommendation a sentry was placed over well No. 110, which was little better than a cess-pool during the hot weather. The inhabitants of the regimental lines have not been permitted to make use of it since. Deputy Surgeon-General Barclay noticed the condition of the stone platform around the draw-well No. 112, and it slopes towards, instead of from, the well. When the necessary repairs were applied for by the Commandant, the answer was "no funds available at present for the purpose."

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements in the lines have been attended to as well as could be done under the circumstances. The liquid sewerage is a very likely cause of disease requiring removal.

Diet. *Diet.*—Provisions have been plentiful, but not very cheap, during the past year. Compensation money to the extent of Rupees 2 to Rupees 4 per mensem was allowed. Vegetables were abundant.

The average prices of the following articles of diet during 1873 were as follows :—

			Seers.
Rice, per	H.S.	Rupee	10
Dholl,	„	„	7
Ghee,	„	„	¾
Mutton,	„	„	4½

I have much reason to believe that the dieting of the sepoys has neither been sufficiently nutritive or varied to preserve health in many instances. It is wonderful to see how rapidly some men improve when it is necessary to give them extras in hospital.

Clothing. *Clothing.*—The clothing of the troops, that is to say their uniform, appears to have been sufficient and well adapted to the climate. The same cannot be said of their native clothing, but this, of course, depends on each individual.

None but the usual hot season changes have been made, and no recommendations were found necessary.

Foot-soreness. *Foot-soreness.*—There has been a good deal of foot-soreness, but it does not appear to have been excessive considering that the men never wear stockings, and usually do not wear boots except in uniform.

Sepoys were not retained in hospital for foot-sores ; if they were able to perform their duties without boots, they were then excused from wearing boots until the sores were healed.

Duty and exercises.—Ordinary garrison duties, drills, parades, guards. The duties do not seem to have exercised any injurious effect upon the health of the troops. Duty and exercises.

Average number of nights per week in bed was only two while it was our tour for Resident's escort duty, which comes for one week in every four. It was about the same during the annual course of musketry, as the companies engaged in musketry are not employed on guard duties.

At other periods the average number of nights in bed is five.

Drill.—There are daily drills (excepting Thursdays and Saturdays) from 6 to 7-30 A.M., and in the afternoon from 4 to 6 P.M. Parades are usually held three times a week. I do not think these duties exercised any unfavorable influence upon the health of the troops. Drill.

During the course of musketry men and officers were out often till noon in the hot season. I wrote to the Commandant on the subject; but, as the course of musketry was then nearly finished, the Major-General Commanding Hyderabad Subsidiary Force decided that it should be completed. Several of the officers suffered in health from it.

No other recommendations were considered necessary.

Exercises.—The regimental gymnasium is made use of by the recruits with evident benefits. During the past year a soldiers' garden has been made, and it affords healthy relaxation and agreeable employment to a large number. A plot in the garden is allotted to each company. We have also started a cricket club, and many of the Burghers and Sepoys enjoy the game. Exercises.

Condition of lock-up rooms and prison cells.—The sanitary condition of the lock-up rooms and prison cells has been satisfactory. No defects injurious to the health of the prisoners have come to my notice. Condition of lock-up rooms and prison cells.

Vaccination.—The state of vaccination in the corps has been satisfactory. Vaccination.

No case of small-pox occurred during the year.

There has been no occasion for vaccination. Vaccination was altogether stopped for a few months owing to the epidemic of fever.

Diseases.—The only disease which prevailed in an epidemic form was intermittent fever. It appears to have been similar in character to that which visited the regiment so severely during the two previous years. I consider it to be caused partly by the effect of this climate on the men after their long period of residence on the coast, partly by bad sanitary conditions in the lines (especially drainage), and partly by the bad site of the lines both with regard to the natural and artificial features of their neighbourhood. A special report upon this fever has been separately submitted; it is therein discussed at some length. I shall, therefore, refrain from any further remarks in this place. Diseases.

As the subject of fever has been considered in a separate report, I shall here confine my observations to some other points connected with the medical history of this regiment during the past year. There has been a considerable loss to the service from *filaria medinensis*, there having been 25 admissions into hospital for this troublesome parasite during 1873. Not a single case of dracunculus occurred in the regiment during the first year of its stay at Secunderabad; (it arrived in February 1871.) The first case was admitted into hospital on the 16th of April 1872, and the total number of admissions for that year was 23. This fact is in accordance with the recorded observation that the period of latency of the parasite, *i.e.*, the period from arrival in a district where it is endemic until its presence becomes obvious, is at least one year. In the present instance exactly fourteen months elapsed from the time the regiment arrived at Secunderabad until the occurrence of the first case of guinea-worm.

During the year 1872 the *direct* loss to the service in this corps from guinea-worm was equivalent to one man constantly sick for 388 days. In 1873 it was equal to one man constantly sick for 667 days. In the former year the average time in hospital for each admission (23) was 16·9 days; in 1873 (25 admissions) it was 26·7 days.

Besides the *direct* loss to the service from guinea-worm there must be a very considerable *indirect* loss owing to the effects of the prolonged suppuration which is often unavoidable, or the injury done to joints or muscles by inflammatory deposits, and, in consequence, the frequent necessity for granting a lengthened period of convalescent leave to its victims.

I have not been able to trace the occurrence of guinea-worm in the regiment to the use of any particular well, nor does it appear to affect specially any one class of the men. It is prevalent amongst the civil population in the neighbourhood. During the past year in few cases did the worm present elsewhere than in the lower extremities. One worm was removed from the nates, another from the scrotum, and one was extracted through the tip of the middle finger. These, however, were not the most remarkable cases. One which occurred lately is, I believe, quite singular. In that case a *red-colored* filaria was extracted in the usual manner from the sole of a man's foot. It was about 12 inches in length and not more than half the usual diameter. Unfortunately it was accidentally broken by the patient himself, and a portion was lost. I was unable, for want of leisure, to examine it microscopically for some days after its extraction; then I found multitudes of what I take to be *altered* blood corpuscles in the expressed fluid, which is of a pale red color. However I am not a sufficiently-experienced microscopist to trust my own unconfined observation; and, therefore, for the present, this subject must be left in abeyance. The worm is preserved in glycerine, and I shall take an early opportunity of having it examined by an experienced observer.

The number of admissions in this regiment during the past year for phthisis pulmonalis is another subject which demands special notice. I think this disease is fairly attributable to the same debilitating causes as the fever, and to the effects of the latter, and of the bad sanitary conditions of the lines as well; of the 10 admissions, 2 were re-admissions, so that there were 8 separate cases of phthisis pulmonalis in the regiment in 1873; of these, 1 died in hospital, 3 were invalided (of whom 1 at least has died since), 3 were sent away on sick leave, and 1 remained in hospital on the 31st of December.

There can be no doubt that the climate of Hyderabad has exercised an exceedingly pernicious influence upon the health of this corps; I believe, however, that it has acted more as an exciting, than as a predisposing, cause of disease. The long residence of the regiment in equable, moist, relaxing climates has rendered the men too debilitated to bear the effect of the variable and dry climate of Hyderabad, which would be bracing to men in a vigorous state of health.

In conc usion, I would beg to draw attention to the *practical conclusions* at the end of the separate report which has been submitted on fever in the 3rd Regiment Light Infantry.

There has been a large number of cases of phthisis pulmonalis in the regiment during the past year. This I attribute to various debilitating causes, but principally to the bad sanitary conditions of the locality, and the effects of the fever from which the regiment has suffered so heavily since its arrival at Secunderabad. The exciting cause is most frequently bronchitis, brought on by vicissitudes of temperature and moisture.

There were 10 admissions and 1 death from phthisis pulmonalis in the regiment during 1873; other chest diseases have also prevailed to a considerable extent, especially during the cold months. There were 17 admissions and no deaths from bronchitis. Pleuritis was the cause of 5 admissions and 1 death; penumonia, of 1 admission and no death; pulmonary vesicular emphysema, of 2 admissions. There were also 2 admissions for asthma and 2 for catarrh.

It should be mentioned as worthy of note that many of the men who suffered most severely from chest affections, and especially from pleuritis and phthisis, were said to be addicted to the use of ganja and other narcotic drugs.

Ventilation of the hospital.

Ventilation of the hospital.—The ventilation of the hospital is very good.

No representations were required.

There was no overcrowding in the hospital wards. Owing to the large number of sick from intermittent fever and other diseases, four tents, with extra cots and bedding for 35 men, had to be procured, and are still in use.

In the hospital the cubic space per head is 1000 feet.

Drainage and latrines.

Drainage and latrines.—The condition of the drainage has not been in any way improved since last year. The same observation applies to sewage. No provision exists for the removal of liquid sewage, including urine, which are allowed to soak into the porous soil. The solid excreta are removed daily.

In the early part of the year I wrote to the Commandant upon the subject, and he applied for the excreta grant which would be required for the removal of the liquid sewage (20 odd rupees per mensem) or for the execution of more expensive stone-drains. The answer was "no funds available."

Hospital water-supply.

Hospital water-supply.—The water-supply of the hospital is supplied by a puckally from well No. 111.

Epidemic.

Epidemic.—The only epidemic was that of intermittent fever; for it and remittent there were 724 admissions during the past year. With regard to its etiology, &c., I have submitted a separate report.

General conclusions.

General conclusions.—Although the number of admissions for intermittent fever has shown some diminution (as I ventured to predict in the Annual Medical Report for 1872), still the general health of the corps has been very unsatisfactory throughout the year 1873. The possible and probable causes of this large amount of sickness are so very numerous that it is difficult to point out any in particular. The debility resulting from repeated attacks of ague has no doubt in many cases predisposed to other diseases, and rendered men less able to resist vicissitudes of temperature. In a separate report upon the fever which has visited this regiment during the past three years I have detailed at some length the many debilitating circumstances to which the sepoys are exposed, and I shall refer to it instead of repeating them in this place.

No doubt in course of time the regiment will become acclimatized to Secunderabad, but it will be in a great measure, I believe, by the weeding out of weakly men by death or invaliding.

I do not believe, however, that the regiment can ever be in a satisfactory state of health while it remains in its present quarters.

Deputy Surgeon-General Barclay inspected this corps on the 8th of October 1873, and reports as follows:—

Barracks.

Barracks.—The lines of this regiment are clean and in fair order. No change has been made in them during the past year.

Drainage is natural by configuration of the ground, aided by side-channels cut in the soil. In consequence of the lines having been laid out without reference to the undulations

of the ground, the drainage in some parts is not good; but this defect has been remedied, as far as practicable, by attention to the side-channels.

Sanitary condition of all buildings.—The guard-rooms, cells, Staff Serjeant's and Apothecary's quarters are clean and in good order. The school-room needs lime-wash. Sanitary condition of all buildings.

There is no public latrine in use. The private latrines in the enclosures of the huts are kept clean by the use of dry earth and daily removal of excreta.

There are no cess-pools or foul drains.

Diet.—Native troops provide and cook their own food. The average prices of ordinary articles during the current year have been— Diet.

	Per H. S. Rupee. lbs.	ozs.
Rice	23	12
Wheat	23	12
Jowary	36	0
Dholl	16	6
Salt (common)	17	9
Ghee	2	2
Bajrah	43	13
Mutton	5	7

Average rate of compensation to sepoys for dearness of rice, 1st January to September 1873, Government Rupees 2-9-3.

Water-supply from wells, two of which, considered of good quality, are set apart for drinking and cooking purposes. The granite platform round the draw-well in front of the barrack, to which some persons in the lines resort, is of very rough construction and insufficient slope. A platform of better construction should be provided. Water-supply.

Exercises.—There is a gymnasium which recruits are obliged to attend twice a week, and which some of the men also avail themselves of. Exercises.

Cricket has lately been introduced by the officers.

Since last year a large soldiers' garden has been provided, in which many of the men work, producing good crops of vegetables.

Duties.—Not prejudicial. Duties.

Conservancy.—The ground in the immediate vicinity of the lines and hospital is clean. Some weeks ago complaint was made of an offensive smell coming from the direction of the filth-pits and rubbish heaps on the south of the town of Secunderabad, about three-quarters of a mile distant. This was brought to the notice of the Cantonment Committee, and measures were immediately taken to remedy the nuisance complained of. Conservancy.

Hospital.—The hospital is clean, in good repair, and well ventilated. No change has been made in it during the past year. Hospital.

The accommodation is, under ordinary circumstances, sufficient; but, on fever becoming prevalent soon after the setting in of the monsoon, it was necessary to provide tents for the surplus sick. Two European tents are at present in use for this purpose. Drainage is natural and sufficient.

Water of good quality brought by puckallies from the wells in the lines.

A new latrine has just been built on the model of that of the Cavalry Hospital at Bowenpilly. It is of ample size and well ventilated, and is in good order. Dry earth and coal-tar are used.

There are no cess-pools or foul drains.

A dead-house is required.

Report on Fever in the 3rd Regiment Light Infantry at Secunderabad during the year 1873 and the two preceding years.

For the sake of convenience the subject has been considered under the following sectional headings:—

I.—Historical Summary.
II.—Statistics.
III.—Nature of the Fever, its complications and sequels.
IV.—Treatment.
V.—General Remarks upon its Etiology.
VI.—Practical Conclusions.

I.—*Historical Summary.*

The 3rd Regiment Madras Native Infantry or Palamcottah Light Infantry arrived at Secunderabad from Madras in February 1871, and took up its quarters in the Chilkalgudam Native Infantry Lines, which had just been vacated by the 4th Regiment Madras Native Infantry.

In the early months of 1871 there was an epidemic of varicella, but otherwise there was no unusual amount of sickness in the regiment until a month after the rains began.

About the middle of July cases of ague rapidly increased. This epidemic lasted until the end of the rains in November, and then it declined somewhat, but it cannot be said to have subsided until the month of February 1872. Even then cases of ague continued frequent. In the year 1872 a severe hot season was followed by an unusually copious rainfall; the cases of fever suddenly increased in July to the proportions of an epidemic, which began to subside in October, but did not end until the following January.

The hospital accommodation proved insufficient for the sick; a number of tents and extra bedding had to be procured for them.

In 1873 ague prevailed to a moderate extent in March and April. In July the disease rapidly increased, as in the preceding years, and declined in a similar manner towards the end of the year.

Four tents, with additional cots and bedding for 35 men, afforded sufficient extra accommodation during the past year.

Under the head of Statistics (Table B) will be found a tabular statement of the number of admissions into hospital for fever (exclusive of eruptive fevers) during each month of 1871, 1872, and 1873. By it the progress and decline of the disease in each year will be seen at a glance. It may be observed that on the whole its visitations were remarkably uniform in their occurrence in each year.

II.—*Statistics.*

Table A.

Showing the Number of Admissions for Fever compared with the Total Number of Admissions into Hospital in the 3rd Regiment Light Infantry for each Month of the Year 1873.

—	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Total Admissions ...	56	36	57	66	34	56	164	184	136	126	113	103	1,131
Admissions for Fever ...	28	8	39	39	15	32	133	157	113	70	52	38	724

N.B.—Average strength of regiment in 1873 was 688.

Table B.

Comparing Number of Admissions into Hospital for Fever in the 3rd Regiment Light Infantry during each Month of 1871, 1872, *and* 1873.

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Total.
1871	12	11*	5	10	8	6	67	157	170	110	79	68	703
1872	59	29	36	43	57	18	208	259	194	93	55	29	1,080
1873	28	8	39	39	15	32	133	157	113	70	52	38	724

* The regiment arrived at Secunderabad in February 1871.

Table C.

Showing the Number of Admissions for Fever from each Company of the 3rd Light Infantry during the years 1871, 1872, *and* 1873.

Companies	A	B	C	D	E	F	G	H	Total.
1871	65	106	89	89	100	71	83	100	703
1872	159	148	163	96	141	133	110	130	1,080
1873	111	108	100	68	66	103	80	88	724
Total ...	335	362	352	253	307	307	273	318	2,507

Table D.

Showing the Mortality from Fever in the 3rd Regiment Light Infantry compared with the Total Number of Admissions for Fever and the Average Strength of the Regiment during the years 1871, 1872, *and* 1873.

Years.	Number of Fever Admissions.	Number of Deaths from Fever.	Percentage of Deaths to Admissions.	Percentage of Deaths from Fever to Strength.
1871	703	...	...	...
1872	1,080	5	0·464	0·727
1873	724	1	0·138	0·138
Total ...	2,507	6	0·239	0·291

N.B.—The average strength in 1871 was 684 ; in 1872, 688; and in 1873, 687.

Table E.

Showing the Comparison of the Admissions from Fever in several Native Infantry Regiments during the period of their Residence at Secunderabad.

Corps	3rd L. I.	4th N. I.	5th N. I.	6th N. I.	24th N. I.	29th N. I.	40th N. I.
Previous stations ...	Madras.	Madras.	Berhampore.	Nagode.	Vizianagram.	...	Saugor.
1866	...	939	...	...	...	378	...
1867	...	511	...	...	616	532	...
1868	...	397	193	...	1,064	...	...
1869	...	137	357	...	669	...	...
1870	...	45	309	...	188	...	...
1871	703	...	61	...	169	177	...
1872	1,080	...	68	...	156	107	...
1873	724	...	...	148	...	222	379

Table F.

Results of Comparative Trials (1*st Series*: *January to April* 1873) *of* (1) *Carbolic Acid,* (2) *Quinidine Sulphate, and* (3) *Nitric Acid and Quassia in the Treatment of Intermittent Fever.*

Treatment.	Dose and Mode of Administration.	Number of Cases treated.	Average Number of Days in Hospital.
Carbolic Acid...	ℳ v to ℳ x thrice daily in aqueous solution ...	20	5·4
Nitric Acid and Quassia ...	℞ Acidi Nitrici dil. ℳ x ... ... Inf. Quassiæ ℥i ... ... M. Dose ℥i to ℥ii thrice daily	17	4·645
Quinidine Sulphate... ...	Grs. v dissolved in water with dilut. sulphuric acid thrice daily.	14	3·357

Table G.

Results of Comparative Trials (2*nd Series*: *June to October* 1873) *of* (1) *Carbolic Acid,* (2) *Diaphoretic Mixture, and* (3) *Quinine Sulphate in the Treatment of Intermittent Fever.*

Treatment.	Dose and Mode of Administration.	Number of Cases treated.	Average Number of Days in Hospital.
Carbolic Acid	ℳ x to ℳ xx thrice daily in aqueous solution ...	150	6·43
Diaphoretic	℞ Antim. Tart. gr. ½ ... ... Potass. Nitrat. grs. v ... ... Spt. Ætheris Nitros ℳ xv ... ... Aquæ ad ℥i ... ... M. Dose ℥i to ℥ii thrice daily.	199	5·48
Quinine Sulphate	Usually grs. x about 2 hours before expected attack.	16*	4·12

* *N.B.*—Mostly cases of tertian or *severe* quotidian.

TABLE H.

Comparing the Prevalence of Fever in the 3rd Regiment Light Infantry with some Meteorological Conditions during the Year 1873.

1873.	Admissions for Fever in 3rd Regiment L. I.	Temperature of Air, ° Fahr.		Mean Dew Point, ° Fahr.	Mean Degree of Humidity.	Rain.		Ozone.		Wind.		Cloud.	
		Approximate Mean for Month.	Mean Daily Range.			No. of Days it fell.	Amount collected, inches.	Mean at A.M.	Mean at P.M.	General Direction.	Estimated Strength.	A. M. 0-10.	P. M. 0-10.
January	28	75·1	29·7	50·1	41	...	...	47	21	E.	...	45	41
February	8	81·0	26·7	50·7	49	...	...	49	19	E.	...	74	70
March...	39	86·6	28·4	57·9	37	1	·10	40	13	E.	...	93	51
April	39	91·6	26·9	54·8	29	1	·01	31	9	W. and E.	...	84	51
May	15	89·2	25·6	65·9	45	10	1·05	40	90	N.W.	...	73	38
June	32	85·3	22·6	68·9	58	7	4·66	43	20	W.	...	62	51
July	133	78·7	14·8	68·9	71	17	4·07	56	32	S.W. by W.	...	36	38
August	157	80·1	13·7	69·6	70	14	5·07	52	33	N.W. by W.	...	50	52
September	113	78·4	16·3	69·4	73	16	5·17	55	34	W.	...	46	45
October	70	78·8	17·8	68·8	71	5	1·41	47	22	N.E.	...	69	67
November	52	81·4	25·0	56·2	41	3	·26	48	18	E.	...	80	75
December	38	75·1	25·3	59·9	58	1	·03	42	16	E.	...	83	82
Means or Totals for 1873 ...	724	81·8	22·7	61·8	56	75	21·83	46	27	...	...	66	55

It is scarcely necessary to make any remarks in this place upon the foregoing table; they will explain themselves. I shall merely direct attention to a few points not noticed elsewhere in this report.

In Table E it may be remarked that the 29th Regiment has enjoyed an unusual immunity from fever since their arrival at Secunderabad in 1871. This may be accounted for by the fact that the same regiment was stationed at Secunderabad in 1866 and 1867 before going to Hong-Kong, where it remained for three years. It will be seen that they did suffer a good deal from fever in 1866 and 1867. Besides, I believe that the climate of Hong-Kong is much more variable than that of most Madras stations, especially the littoral ones.

The 29th Regiment, therefore, in 1871 was previously acclimatised.

With regard to fever in the corps of Sappers and Miners (which is *not* included in Table E for various reasons), I may refer to Deputy Surgeon-General Barclay's remarks in his report for 1871.

From the same Table (E) the fact will also be patent that all, or almost all, newly-arrived native regiments at Secunderabad, and especially those who come from moist-warm climates, suffer more or less from fever.

It will appear, too, that after a period of about three years the regiments become acclimatised, and that the amount of fever diminishes, in a very marked manner, from year to year, in proportion to length of residence here. With regard to Table C it will be seen that the fever was pretty evenly distributed in the regiment. It may, however, be worthy of note that the companies which suffered least are the central ones, which are located upon the slope of the hill (*vide* map); and these are the companies most sheltered, and in the best position with regard to drainage.

In Table D it must be mentioned that four of the deaths resulted from *remittent fever* and two were set down to *febricula* (in 1872). Two men who were sent away on sick leave for *febricula* in 1872 died in 1873 while still absent. They are not included in the table.

III.—Nature of the Fever, Complications, &c.

The very large majority of the cases were of a mild form of quotidian intermittent fever. In the year 1872 my predecessor with this regiment appears to have returned the mild cases of ague (in which rigor was not well marked) as "febricula," and in that year *two deaths from febricula* were registered. I am inclined to believe that most of these cases should have been classed as ague.

It is a well-known fact that ague, when of a mild type, or when under the curative influence of medicine, only manifests itself by heat of skin followed by diaphoresis, and it has no VERY OBVIOUS cold stage (*i.e.*, no rigors).

If the disease becomes more severe, a slight shivering fit ushers in the hot stage.

In severe cases rigor is usually well marked. Now, between the extremes, there are innumerable gradations; and we have frequent opportunities of watching those gradations in

one and the same case during the process of cure or of aggravation without ceasing to regard the disease as ague still, even when the cold stage is not obvious. The severer forms of intermittent fever differ from the milder, not in nature, but in degree.

Indeed, there is not a wider difference between them than between severe and mild forms of many other diseases. Take dysentery for example. The main diagnostic marks of mucus and blood in frequent scanty stools with griping and tenesmus are sufficient characteristics of dysentery, whether it be of the severest and most rapidly fatal typho-scorbutic nature, or of the mildest catarrhal form. And is not a *complete* intermission, with periodic return, of an idiopathic fever sufficiently characteristic of intermittent fever, especially when occurring in men amongst whom hemicrania, splenic enlargement, anæmia, and similar disorders are common ?

A popular name for intermittent fever is "fever and ague;" one may frequently hear the rigors termed "ague," and when they are absent, the case is often styled "fever without ague."

But in medical nomenclature "ague" and "intermittent fever" are used as synonyms, at least in the present day. It may be in partial obedience to the popular fallacy that some medical men have discarded the term *ague* for cases of intermittent fever where the stage of rigor is not well marked, and call such cases "febricula." I have made somewhat lengthy observations upon this subject because it is one of no trivial importance. The statistics of fevers must be considerably vitiated, if not rendered altogether unreliable, by the classification of a very large number of cases of intermittent under the head of continued fevers (febricula).

Professor W. C. Maclean, in one of his Netley lectures, mentioned that "intermittent fevers are 2½ times as frequent in Bengal and twice as frequent in Bombay as in Madras. *Continued fever is the most frequent form in Madras,* but not nearly so fatal as the mildest form of intermittent in Bengal." Continuing, he says further on that "this excess of continued fevers in Madras is probably due to ephemeral"— *i.e.*, febricula—"being included."

I am not acquainted with the statistics upon which Professor Maclean grounds his opinion, but I am quite satisfied that statistics must fully bear out his statement if it has ever been a common practice amongst Madras Medical Officers systematically to register cases of intermittent fever under the head of febricula.

In the numerous cases of mild intermittent fever that have come to my notice, although rigor was often totally absent, yet, when questioned—or often without question—the patient complained of a sensation of chilliness before he became sensible of feverish heat. This sensation of chilliness, *which was almost invariably experienced,* was only a subjective one, as the temperature of the skin was always above the normal standard when it was complained of.

Of the cases of intermittent fever which occurred in the 3rd Light Infantry during the past year not more than one-third had SEVERE rigors during the cold stage. The very large majority of the cases were of quotidian ague, and this is known to be the variety in which the cold stage is shortest and least severe.

At a rough guess about eight per cent. of the cases were of the tertian variety, and in those cases the rigor was generally severe.

There were three admissions, with one death from remittent fever during 1873, and these are included in the statistics given in this report.

The following is a typical description of the fever which prevailed in the regiment during the past year :—

A sepoy comes to hospital in the morning complaining of having had an attack of fever last night or yesterday. He is suffering from debility, lassitude, anorexia, and, perhaps, frontal head-ache, hemicrania, or pains in the back or limbs. The conjunctivæ are frequently more or less jaundiced, and sometimes injected.

The tongue is often furred and bowels constipated. Skin cool, but generally dry. Pulse natural. Urine often high-colored, scanty, and, perhaps, scalding when passed, and especially during the paroxysm. He often has bilious vomiting, and occasionally there is purging of a similar character. The spleen or liver, or both those viscera, are often sensibly enlarged, and sometimes tender on pressure.

At some period during the following 24 hours, corresponding, or nearly so, with the time of seizure on the previous day, a sensation of chilliness, with or without severe rigors, comes on. If seen in this stage his skin will be found preternaturally warm and *harsh* to the touch, and his pulse small but excited.

This lasts for a period varying from a few minutes to an hour, and is followed by a dry, burning, pungent heat of the skin (38° to 41° cent.), with full and rapid pulse, headache, and injected conjunctivæ. In this stage delirium is of occasional occurrence, but it is very rare.

After this state has lasted for one to five hours or more, the paroxysm terminates in diaphoresis, more or less profuse, and with much prostration.

Under the influence of treatment the rigor becomes less severe, and after a day or two generally disappears, though heat of skin—but not rising as high as before—and sweating return at the regular hour, or sometimes irregularly, and finally the patient becomes altogether free from the attacks.

Complications and Sequels.

As complications, irritability of the stomach, and biliary derangements are very common, *slight* jaundice is frequent. Bilious diarrhœa sometimes comes on, causing evident relief.

At other times there is a deficiency of bile in the stools, and cholagogue purgatives are required to restore its flow.

Herpes on the lips or face—occasionally on the trunk—occurs in about one-third of the cases. Aphthæ and fissures of the tongue are not uncommon. Semi-acute or chronic hepatitis has resulted in a very few instances.

The most frequent sequel is general debility with anæmia. Chronic enlargement of the spleen (usually with induration) is common, and when it occurs relapses are frequent.

Some cases of neuralgia appear to have resulted from attacks of ague.

An unpleasant sequel in other instances has been anæsthesia of some part of the body, usually one or both legs below the knee, sometimes accompanied with slight œdema of the part.

In several cases phthisis pulmonalis appeared to be partly caused, or at least excited, by repeated attacks of ague.

One case of ascites during the past year was a sequel of intermittent fever.

Mortality.

All the deaths given in Table D were caused by remittent fever, except two (in 1872) from "febricula." Although no deaths were directly attributable to intermittent fever, I believe it to have been indirectly the cause of much of the mortality and invaliding.

I may here make a brief allusion to the case of a European Officer who died during the past year. He was seized with a severe attack of ague on the 28th of May, before he had been quite a month at Secunderabad. Next day, during the hot stage of the fever, and shortly after I had seen him, he was seized with an attack of apoplexy, which proved fatal within about an hour's time, notwithstanding almost immediate treatment.

IV.—*Treatment.*

The general indications appear to be, firstly, active purgation to relieve portal congestion; secondly, to establish free cutaneous action, partly with the same object in view; thirdly, to prevent the periodic paroxysm; fourthly, to combat debility by judicious diet, when possible, and by attention to hygiene.

I may incidentally mention the inefficacy, in my hands, of mercuric iodide ointment in several cases of hypertrophied spleen, although it was usually combined with syr. ferri iodidi internally.

Professor Maclean's undoubtedly excellent results with this remedy at Netley may perhaps be largely attributable to the change of climate.

With regard to quinine, I found one large dose (grs. x) during the intermission, and an hour or two before the expected time of seizure, better than repeated small doses.

When the fever occurred at night-time a full opiate at bed-time was sometimes successful in averting it.

Changing the hours of meals appeared occasionally to exercise a good effect.

In the few cases in which I have tried arsenic it was of no value whatever.

In the treatment of paroxysmal fevers I would rank tartarated antimony next to quinine, and as a frequently important adjunct to that remedy.

Besides its diaphoretic action, it exerts a powerful influence on the reduction of temperature and of cardiac excitement in fever. Debility, unless when very extreme, is scarcely an objection to its moderate use; at least I have never known it to produce any bad effects.

In a few cases of remittent fever I have employed aconite for the same purpose with decided benefit. Surgeon L. C. Nanny, my predecessor with this regiment, treated a number of cases of intermittent fever during the year 1872 with carbolic acid, and he appeared to place much reliance on this remedy.—(*Vide* articles in the *Madras Monthly Journal* and *Indian Medical Gazette* towards the end of 1872.)

On this account I was induced to give carbolic acid a trial.

My experience of this medicine is by no means favorable; indeed I have come to the conclusion that it is nearly, if not altogether, inert in the cure of intermittent fever.

Tabular statements of the results of this and other remedies will be found in this report under the head of Statistics (Tables F and G), and decidedly condemn carbolic acid. The results with other remedies were *in all instances* considerably more favorable, and I think fully justify the final abandonment of carbolic acid as a febrifuge.

It did not even appear in any instance to allay irritability of stomach—if anything, the reverse—although, from its close alliance to creasote, a similar local action might fairly be anticipated.

It should be stated that in the tabulated cases in no instance was any treatment employed but that mentioned, except the exhibition of a purgative when required, and this was given to all alike. It was usually required at the outset.

The ordinary black draught was generally preferred on account of its certainty of action.

No cases in which there was complication by other diseases are included, and none but cases of distinct intermittent fever.

The patients were always "detained" for a day before "admission," and were not "discharged" until they were free from fever for two days, so that the number of days during which a man remained "admitted" in hospital coincides with the duration of his sickness as a rule.

The first series of recorded cases (Table E) includes a comparative trial between (1) carbolic acid, *supposed to be* diaphoretic and anteperiodic; (2) nitric acid and quassia, a stomachic and hepatic tonic and alterative; and (3) quinidine sulphate, analogous in action to quinine.

It will be seen that the cases treated by quinidine remained in hospital for an average of 3·357 days, those treated by nitric acid and quassia for 4·645 days, while the men treated by carbolic acid averaged 5·4 days in hospital.

It must be noted that quinidine was usually given in rather severe cases only, while the other remedies were employed in cases indiscriminately selected; consequently its comparatively great value is very well marked.

In several instances (not included in the tables) a few doses of quinine or of quinidine were sufficient for cure after a prolonged trial of carbolic acid had been fruitless.

Indeed, I am strongly inclined to believe that most, if not all, of the cases treated exclusively by carbolic acid would have got well spontaneously just as soon with the usual assistance of a purgative, a blanket, and rest.

In the above cases it may be objected that the dose of carbolic acid was too small, but the correctness of the first deductions is fully borne out by the second series of cases (Table F), when comparative trials were instituted between carbolic acid (in doses of 10 to 20 minims thrice daily) and a diaphoretic mixture, according to the following formula :—

℞	Antim. Tartarat...	...	gr.	$\frac{1}{8}$
	Potass. Nitrat. ...	...	grs.	5
	Spt. Ætheris Nitrosi	...	♏	15
	Aquæ	...	℥	1

M.

Dose: ℥1 to ℥2 thrice daily.

(*N.B.*—Our supply of spt. ætheris nitr. ran short, and it was omitted from the above mixture in about half the cases.)

The results of some cases treated *exclusively* by quinine sulphate are also included in Table F. Here again cinchona bears the palm, although the cases in which it was used were nearly all severe, and mostly of the tertian variety.

One hundred and fifty cases of this series, treated exclusively by carbolic acid, give an average of 6·43 days in hospital for each man.

In 199 cases treated by diaphoretic mixture, the average was only 5·48 days.

In the 16 cases treated by quinine sulph. exclusively, the average was but 4·12 days. Indeed, none of the other remedies can at all compare with cinchona; and I do not now consider it justifiable to withhold it in the treatment of any but the very mildest cases of ague, and in them only from motives of economy.

The duration of the disease is very much shortened by its use, and therefore the secutive debility is to a great extent avoided or mitigated; and I believe the liability to relapse is better guarded against than by any other medicinal remedy at our disposal.

Dr. Morehead considers cinchona "the only anteperiodic in which confidence can be placed." The same distinguished observer, writing of other remedies, says: "I am aware that others have rated these several remedies more highly, but in judging of their usefulness we ought to recollect the tendency of the disease, in a large proportion of cases, to terminate spontaneously after a time. This feature is best marked in the mild quotidians of the commencement of the rainy season in those climates in which the rainfall is not great."

In the prosecution of the above inquiries I have to acknowledge the intelligent co-operation of the medical subordinates attached to the regiment, and especially of 3rd-Class Hospital Assistant K. Dhurmarajooloo.

V.—*General Remarks on Etiology.*

In the Annual Medicial Report of the 3rd Regiment Light Infantry for the year 1872 I gave a tabular statement, comparing the number of cases of fever in several native infantry regiments during each year of their residence at Secunderabad. The same table, slightly modified and enlarged (through the kindness of Deputy Surgeon-General Barclay, who gave me access to the records), is reproduced in another part of this report (Statistics, Table E).

From that statement it will be seen that almost all the regiments suffered more or less from fever during the first three years of their residence at Secunderabad, and that this was the case in a marked manner with the 3rd Light Infantry and with the 4th Native Infantry which preceded it in the same lines.

Hence it may be concluded that there is some influence in the conditions of residence at Secunderabad which produces (paroxysmal) fever in most, if not in all, newly-arrived native corps.

We shall, perhaps, further conclude, with some probability, that, whereas the 4th and 3rd Regiments occupied successively the same lines, and both those regiments suffered severely, *ergo* the local climatic or sanitary conditions of their quarters are specially to blame.

In the latter deduction, however, there is a possible source of fallacy, inasmuch as both the 4th and 3rd Regiments came to Secunderabad from Madras, where they had been previously stationed, and the influence of climate may justly be regarded as having produced an exaggerated effect in their instances, especially in the case of the 3rd, which was stationed for so many years on the coast and in Burmah. The same remark may apply to the 24th Native Infantry, which came to Secunderabad from Vizianagram. It is a well-known fact that servants and other natives of the littoral districts of this Presidency who come to Hyderabad generally suffer from fever, at least until they become habituated to the climate.

During the past year, however, I have met several officers who had been stationed at Secunderabad many years ago, and most of them stated that these (Chilkalgudam) lines were always considered "feverish and unhealthy."

After careful and repeated examination, I have come to the conclusion that, besides the effect of the nature of the soil, the climate, and the previous constitutions of the men—conditions which may be common to all the regiments in the station—the local sanitary state and physical geography of the Chilkalgudam lines are such as would contribute to render them specially unhealthy.

Before entering on the broader question of the causes which produce fever in native regiments newly arrived at Secunderabad, it will be well, therefore, to review the local geography and local sanitary defects of these lines.

This part of the cantonment is notoriously unhealthy, and is close to the well-known European Cavalry Barracks (quondam Infantry Barracks) of unenviable reputation for dysentery and cholera. The sepoys' lines are built upon the summit and northern slope of a low hill looking towards the European Barracks. The huts are very old, and badly built—not at all in conformity with present regulations—and very defective in regard of ventilation and drainage. The streets are at right angles to the slope of the hill, and no provision exists for the removal of urine and foul water which are allowed to saturate the porous granitic soil. During the period of the south-west monsoon these lines are exposed to a breeze which, after travelling over the extensive tract of wet cultivation south of the embankment of the Hussan Saugor Reservoir, sweeps up through a valley where the filth and refuse of the Secunderabad bazaars are deposited.

The west and north-west winds blow across the Husan Saugor Lake and partly over the town of Secunderabad ere they reach the lines. To the north, within half a mile distance, are the European Cavalry Barracks, the railway embankment intervening. Beyond the Cavalry Barracks is a range of steep granite hills situate between those barracks and Trimulgherry. About half a mile distant on the east, and extending north and south, is a bare elevated "maidan," sloping on this side towards the south-west.

In the valley between our lines and that maidan there are some paddy fields and two small foul tanks, as well as the Cavalry horsekeepers' lines and the small village of Chilkalgudam, the latter being about 300 yards from the lines.

This valley extends north and south, and runs down to a tank about a mile S.S.E. of the lines.

Bordering this low ground there are toddy plantations.

To the south are the officers' houses on high ground, and some low hills composed of immense blocks of granite irregularly piled together. Still further south, and extending to the south-west, is the richly cultivated and watered plain of Hyderabad.

Immediately around the lines, to the distance of about 300 or 400 yards, the ground is nearly bare and very uneven, with boulders of granite here and there on its surface.

In a part of the plain before mentioned, and about half a mile north-east of the lines, latrine trenches have been dug, and the place is offensive, although the conservancy appears to be pretty good. This cannot be said of the conservancy of the ground (also mentioned before) about three-quarters of a mile to the south-west, where the sweepings and filth of the town of Secunderabad are deposited, and where a considerable tract of land is covered by mixed and decaying animal and vegetable refuse. This subject has been brought to notice in other places, and is here alluded to with regard to its possible influence on fever.

During the south-west monsoon, especially on hot days after rain, the breeze is most offensively tainted by passing over this place.

As before mentioned, this wind (south-west) blows first over the paddy fields below the embankment of the Husan Saugor Reservoir, and then over this large tract of decomposing

animal and vegetable substances. We have here both vegetable and animal malaria, and the mixture has been said to be more dangerous than either singly. (Aitken.)

It is certainly during the prevalence of the south-west monsoon that fever is most rife in the regiment. The other monsoon wind (north-east) is not totally free from like objections. Coming from paddy fields (about three miles distant) south-west of Mulali, it sweeps over the bare plateau before alluded to, and then over the latrine trenches, some paddyfields and toddy topes, two small dirty tanks, the not over-cleanly horsekeepers' lines, and the filthy village of Chilkalgudam.

Dr. Parkes, in one of his lectures at Netley, cites a case where a quantity of rubbish (similar to that which is deposited in such large quantities on the ground south of the Parsi tower) produced a local outbreak of ague. "In a certain Prussian Hospital it was noticed that tertian ague became endemic in a large, airy ward. Patients recovered on being removed to other wards. A large tank was found outside, beneath the floor of the ward, full of vegetable debris and brushwood. When this was removed, the fever disappeared."

In the present instance it would be much easier to remove the regiment than the nuisance.

From the foregoing remarks it will be gathered that the locality of the lines is not all that might be desired.

With a brief allusion to the water-supply, I shall conclude this notice of the sanitary condition of the Chilkalgudam lines.

Three wells are at present used by the regiment, and the water is usually sufficient in quantity. Dr. Hastings analysed the water of the principal well, and reported unfavorably upon it; but the Chemical Examiner at Madras did not endorse his conclusions. However I think its quality may be regarded with some suspicion during the hot season, when it sometimes becomes almost dried up. A fourth well (No. 110) *was* in use, but on account of its extreme foulness a sentry has, for the greater part of the year, been placed over it to prevent its use by the inhabitants of the regimental lines.

I shall here take the liberty of quoting some remarks of the Army Sanitary Commission on Surgeon Wright's reports upon fever in the Godavery District (*vide* Proceedings of the Sanitary Commissioner for Madras, January 1873), as they seem to be peculiarly applicable to the present case, if *south-west* and *westerly* be read for *north-east* and *northerly* winds.

"The most important facts regarding the frequency and fatality of the disease appear to be that it increases rapidly after the rains; that it is comparatively quiescent during the dry, warm months; that the disease is most active during winds blowing from the north-east (*south-west*) and from northerly (*west*) directions generally, so much so that its increase may be predicted if there be heavy rainfall in the north-east (*south-west*) monsoon. It is aggravated by cold winds acting on constitutions imperfectly nourished and indifferently clothed and sheltered * * * * . It would be useful also in any further inquiry to ascertain whether the disease is not aggravated by ordinary sanitary defects in the houses, such as overcrowding, damp, defective ventilation, filth, and impure water."

In the present state of medical opinion concerning the etiology of paroxysmal fevers it would be presumptuous to hazard a decided opinion. All that can be done is faithfully to record observed facts, and upon them our speculations must be founded. The present instance is perhaps not of much value, for it may be made to suit the views of most theorists, whether they be worshippers of vegetable (or orthodox) malaria, or of animal malaria, or even votaries of the recent theory of famine (Dr. Lyons) as the principal cause of fevers generally looked upon as malarious.

I must not be understood to mean that the fever which occurred in the 3rd Regiment *may* have been relapsing fever. Relapses *were* frequent, but it is well known that relapses are of the commonest occurrence in paroxysmal fevers, and almost one of their characteristics. The description of the fever given in Section III. of this report is sufficient to prove that the disease was nothing but true intermittent. I allude to *famine*, however, advisedly, for several instances of semi-starvation amongst sepoys have come to my notice; and, if hearsay is always to be trusted, the instances are very numerous. In some cases this appears to be voluntary in order to save money, but in most it is owing to debt, or dissipation, or a large family, not leaving the man sufficient to feed himself properly.

With regard to dissipation, the proximity of these lines to the public bazaars and to toddy plantations is a bad feature. I have some reason to believe that narcotic drugs are indulged in by a large number of the men.

It is probable that all, or most of, the circumstances mentioned have a combined influence in causing this fever by producing a cachexia which predisposes to it. The great majority of cases, and the most severe ones, occur in men of debilitated constitution.

Now, if we regard the malarial theory of paroxysmal fevers as the true one—and the weight of evidence and of opinion still inclines in its favor—we shall find that the general nature of the soil at Secunderabad is not unfavorable to the production of malaria according to accepted doctrines.

The soil is mainly composed of disintegrated granite (with some admixture of quartz and greenstone rocks), and it is extremely porous and variable in depth. In some places domes and irregular projections of solid granite rise above the surface; and there is reason to

believe that large and deep basins and fissures exist in the rock below the surface, and retain water in many places in the subsoil. Thus some wells are but little affected by the hot weather; for instance, a well at the mess-house of the 3rd Light Infantry which, although sunk in elevated ground, affords an abundant supply throughout the year.

Each particle of the porous soil is probably more or less incrusted with organic debris. In soil apparently containing a very small proportion of organic matter I have often found small fragments of quartz or other stone incrusted with vegetable debris in a thick pellicle, which could be peeled off like the cuticle of a plum. This incrustation is probably mainly composed of grasses and other annual plants, whose remains, dried and broken up by the scorching suns of summer, are washed into the soil by the heavy rains of the monsoon. Light rains with short intervals of drought, such as often occur here during the monsoon, will be most favorable for the decomposition of those organic materials in the soil, by furnishing together, in proper proportions, the three essential factors—air, water, and heat.

During the night the interstitial air in the soil becomes condensed by cold, and absorption from the outer air takes place. As the ground becomes heated during the day, this interstitial air again becomes rarified; and, loaded with the products of sub-surface decomposition, it is poured forth in immense volumes (proportionate to the depth of loose soil and the diurnal variation of temperature) to taint the general atmosphere. The same effect, of course, partly results from rise of the subsoil water.

Cultivation and other measures which diminish these exhalations are well known to lessen fever in a marked degree.

All around the cantonment of Secunderabad there are immense tracts of uncultivated land, which, though hardly susceptible of cultivation, produce an annual crop of grass, which is but partly collected, the rest being left to wither and be washed into the ground during the monsoon.

With regard to the usual exciting cause of this fever, I am of the same conviction as Deputy Surgeon-General Barclay in attributing it to the great and sudden change of temperature, and of moisture in the atmosphere at the beginning of the rainy season, acting upon constitutions unaccustomed to such great and sudden meteorological changes, and with insufficient stamina to resist them. The 3rd Regiment Light Infantry had, for a long series of years, been stationed on or near the coast (Malabar Coast, Burmah, Madras, consecutively), where there is a moist-warm climate all the year round, and where atmospheric vicissitudes are not very considerable.

Here, during the hot season, the same sepoys are exposed to a high temperature, combined with a dry atmosphere, conditions favoring excessive diaphoresis.

The diurnal variations are also large, and the nights are comparatively cold.

After the setting in of the rains the air becomes rapidly cooled; and this, combined with a sudden accession of moisture, must tend in a very marked manner to check the cutaneous excretion.

The sudden and unusual contraction of the superficial blood-vessels produces passive congestion of the liver, spleen, and intestines (and occasionally the congestion becomes active). About this period of the year (the accession of the monsoon) cases of jaundice are of common occurrence, but are usually cured without difficulty by brisk purgation, and consequent relief to the congested portal circulation. Many of the men admitted for ague were more or less jaundiced, and the liver, or spleen, or both, were frequently found enlarged to an appreciable degree. Cases of dysentery and of diarrhœa are also much more common than usual at this period of the year. Fever is often cured as soon as free diaphoresis is restored; and the treatment is usually directed to promote it, as soon as the portal system has been relieved, if necessary, by a purgative. The opinion of "chill" as the exciting cause of fever, and, indeed, of most tropical diseases, is held by the majority of the profession. Dr. Aubert Roche (quoted by Dr. Tilt), who practised for four years at Suez, goes so far as to state that "ninety *per cent. of all diseases* were caused by the exposure of the perspiring body to the refreshing winds of evening and night which are saturated with dew."

It would seem that *moisture* is as necessary as cold for the production of this fever; for, in the months of January and February, when the air, though cold, is comparatively dry, fever and most other diseases are nearly at a minimum.

The ordinary cases of fever excited by chill may be very aptly compared to ordinary winter catarrhs in Europe; in the one case congestion of the organs of digestion taking place, and in the other congestion of the respiratory organs. Now it is well known that in Europe a person in robust health is most unlikely to get a chill or "to catch cold;" and, so far as my experience goes, I think the same holds good in India with regard to fever.

The individuals who suffer in both cases are nearly always the debilitated from whatever cause, as previous disease, constitutional weakness, ill-feeding, ill-clothing, or dissipation, or, as in the present instance, from the effect of long residence in relaxing climates.

What is a bracing breeze to the well-nourished man with a vigorous circulation is a chilling—too often a deadly—blast to the ill-fed and debilitated individual.

Why the same cause should in one case produce congestion of the abdominal and in the other of the thoracic viscera is a difficult problem to solve, and one which it would be foreign

to our purpose to discuss here. My own view is that this apparent selection is due in a great measure to causes connected with clothing and habits of living in the two countries, almost as much so as to the effect of climate.

We have no doubt that a chill does excite fever, but how? Is it merely by check to the cooling action of cutaneous perspiration? Is it by the poisonous retention of effete products which should normally be removed by that great gland, the skin? Is it on account of the excessive congestion and impaired or deranged action of the liver or spleen, or both of those viscera? Is febrile increase of temperature sometimes produced by stimulation of the glycogenic function of the liver, owing to congestion, rather than by increased metamorphosis of tissue? And if any or all of these causes, individually or collectively, are productive of the phenomena of fever, what is their mode of action? These are questions of deep physiological and pathological interest, but questions to be unravelled by a more advanced age of physiology and pathology.

In the present state of medical knowledge, a just explanation of the periodicity, observed in the class of fevers under consideration, appears to be not much more feasible than a faithful theory of their etiology.

The cause of this periodicity may perhaps, with some degree of probability, be attributed to the influence of *habit*. According to this view ague would be a simple non-specific fever, with its peculiar characteristics caused by a climatic habit imprinted on the nervous system. In a tropical climate especially—at least during certain seasons of the year—all persons may be regarded as subject to natural fluctuations, analogous to the fits of ague, without any derangement of ordinary health. In the early morning most persons have a cool and dry skin, and the morning cold-bath often renders the similarity of this period to a mild, cold stage of ague still greater. Then comes the period of reaction, when the sun rises, or after the bath. The skin is warm, but still rather dry, the circulation vigorous, and the natural heat of the body rises appreciably. This represents the hot stage. After these conditions have lasted for a variable period, and when the heat of the day commences, *sensible* perspiration begins. This is the analogue of the sweating stage.

This course of events is often repeated, in a less marked degree, for those who are accustomed to go out in the cool of the evening. The perspiration is first checked; then, on returning home, reaction sets in, followed by perspiration at night-time.

This is the natural and healthy state of daily life in a tropical climate.

Is it not reasonable to suppose that this rythmical current of events may, under certain conditions, assume a perverted and diseased form?

Let us suppose that a person residing in a tropical climate, and suffering from temporary or permanent debility of some kind, is exposed to an unusual degree of cold at any time, or even to a usual degree of cold at a time when his body is perspiring, he probably "gets a chill," *i.e.*, a sudden contraction of the superficial capillaries and cutaneous muscular fibres, producing "cutis anserina." At the same time there is a passive engorgement of some, or all, internal viscera, probably producing some derangement of function. Now this person, when in ordinary health, has been daily accustomed to some degree of cold followed by healthy reaction. The habit will probably be followed out. In proportion to the extent of "chill" will be the violence of reaction, which will amount to more or less febrile excitement. After a time this will naturally end in free sweating, an exaggeration of the habitual daily occurrence. I think the force of habit acquired by the (ganglionic?) nervous system, especially in individuals with a weak but excitable circulation, is sufficient to account for the periodic return of the ague. Disease is often an exaggeration of a natural process.

The case with which a habit is imprinted on the nervous system is very well illustrated by the case of Monsieur Brachet, cited by Dr. Wood and by Dr. Aitken. He bathed for several nights in the river Saone before bed-time. When he ceased to do so, cold, hot, and sweating fits naturally came on about the same hour, and continued to recur until he took a long ride, which brought on abundant diaphoresis, and (to use a homely expression) "broke the habit."

The fact that paroxysmal fevers are most prevalent and most severe in climates where the diurnal variations of temperature and of hygrometric saturation of the atmosphere are greatest is also certainly a strong argument in support of this theory.

The repeated congestions of the liver and spleen caused by ague, in asthenic individuals will be likely to bring on diseased structural changes in these viscera, and in vigorous subjects acute disease may be engendered. The enlargement of these organs is more a result than a forerunner of ague.

It is well known that all tropical fevers have a marked tendency to exhibit the phenomenon of daily periodicity, and this appears to give additional confirmation to the theory of a natural habit imprinted on the nervous system, especially in natives and in those who have resided for a length of time in a tropical climate. Of course the degree of susceptibility will vary widely in different constitutions and in different degrees of health. Although this theory of periodicity is but crudely and insufficiently detailed in the above observations, I believe it to be worthy of very serious consideration and observation. It

certainly has the *primâ facie* recommendation of simplicity, and I do not think that it is necessarily opposed to any ascertained facts.

Theories, however, are numerous, but proofs are few. Empyricism—if such a term may be employed to designate deductions from the facts of experience—is certainly more reliable in practice than unsound theory and improved speculation.

Theory, so far as it represents the logic of facts, must be the foundation of a sound pathology and a rational practice. For instance (to return from digression), paroxysmal fever has been found to coincide with a sudden fall of temperature and increase of moisture in the atmosphere, and to occur commonly in debilitated individuals. The natural conclusion is that these conditions are to some extent the causes of the fever. We may also reason that, as previously debilitated individuals frequently got fever on the occurrence of sudden lowering of the temperature and increase of the hygrometric saturation of the atmosphere, therefore *debility* (produced in this case by the prolonged effect of hot, moist climates) was the remote, and *damp cold* the proximate cause of the fever. If we can remove the former condition, we shall cure the liability to fever; and if we can remove the latter conditions (or their effects), we shall cure the actual attack of fever, but not the liability to relapse. Now we know of drugs and of other measures by which that debility may be corrected, and by which the action of the skin may be restored, and these are the natural indications for successful treatment. In the selection and administration of medicines we must to a great extent act empyrically. A remedy which has been found efficacious should not be abandoned, because its mode of action is still unexplained. The *science* of therapeutics is still in its infancy, and we cannot wait for the light of its advance when we have the decided results of experience to guide us. Quinine has a deserved reputation, and it possibly strikes more at the root of paroxysmal fevers than any other medicinal remedy with which we are acquainted, by correcting the specific (?) cachexia which produces a special liability to those affections. It is by no means certain that *malaria*, in the ordinary acceptation of the word, is the specific cause of that cachexia—if indeed it be specific. That is still, and will probably long remain, a *questio vexata*.

There is no doubt that in certain localities, and under certain not fully-ascertained conditions, paroxysmal fevers prevail in an especial degree.

Those conditions, whatever they be, are the agency by which is produced a specific (?) debility or cachexia favorable to the development of paroxysmal fever; and, until that debility (malarial cachexy) exists, exposure to cold and damp will rarely if ever bring on the fever.

If we knew the exact combination of circumstances which results in the production of this fever-cachexia, and found a means of removing or of combating them, we should have arrived at the root of the evil; and the treatment of paroxysmal fevers would be a matter of minor importance, for we might perhaps avert their occurrence in most instances. Meanwhile all we can do is to observe patiently, and record faithfully our observations. By means of rational and practical hygiene, based upon well-observed facts, we shall be rewarded by success before those who endeavour to find facts for the support of a pet theory. It is not of so much importance to discover what is the subtle agent "malaria" as to elucidate the constant combination of circumstances under which paroxysmal fevers are endemic or epidemic in certain localities, or at certain seasons, what conditions are favorable or necessary for their production, and how these conditions may be avoided. Much has already been done in this direction, but fully as much still remains to be done.

By careful observation we may yet hope to arrive at a real, if empyric, antedote long before the researches of pathology and of organic chemistry shall have grappled with the doubtful substance of malaria.

VI.—Practical Conclusions.

1. It is highly inexpedient, in a sanitary point of view, to move native corps suddenly from the climate of the coast to Secunderabad (or probably to any of the high table lands of the interior).

A probable corollary is that native regiments should not be retained long at littoral stations, nor should they be quartered at two such stations in succession.

2. The official nomenclature of diseases should be rigidly adhered to on all occasions in order to render correct statistics. It would seem to be advisable to lay down rigid rules for the nomenclature and classification of fevers, so that the returns may no longer be liable to error—by the classification, for instance, of mild quotidian ague as febricula, which is essentially a *continued* fever of non-malarial origin.

3. Carbolic acid is of little, probably of no value in the treatment of intermittent fever.

4. Quinine is a really reliable specific in these affections, and quinidine (in larger doses) is similar in action.

5. It is advisable, on sanitary grounds, that the Chilkalgudam Native Infantry lines at Secunderabad should be abandoned.

A report is current that this step is already planned, and that new native lines are to be built upon the site of the present European Cavalry Barracks as soon as the new Cavalry Barracks near Bolarum are completed.

I cannot notice the measure without entering a protest against it. It may be economical, but a worse site could not easily be chosen, whether considered *per se*, or with reference to the historical antecedents of the old European Barracks.

6th Regiment Native Infantry.

Station—Secunderabad.

Arrived from Nagode 11th December 1872.

Average strength	688
Do. present	662
Admissions	425
Daily sick	16
Deaths in hospital	4
Do. out of hospital...	1
Pensioned	8
Sick leave	...

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Stations.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Nagode	69·56	3·76	1·15	2·02	...
1871 ...	Do.	142·63	4·06	·66	...	...
1872 ...	Secunderabad...	109·50	2·91	·14	·70	1·68
Average ...	.....	107·23	3·57	·65	·90	·56
1873 ...	Secunderabad...	64·19	2·41	·72	1·16	...

The following medical officers were in charge during the year :—

Surgeon-Major L. W. Stewart.
Do. S. F. Trimnell.
Do. W. J. Busteed.
Surgeon E. Fawcett.

The last named reports as follows :—

Climate.—The climate of Secunderabad during the past year has been pleasant. The hot weather did not last as long as usual, as there was a fall of rain in the beginning of May which cut short the hot winds, and we enjoyed comparatively cool weather till the monsoon regularly set in on the 7th June. The rainfall at this station has been much below the average this year, being only 21·83 and the average rainfall the twelve previous years was 27·51. However the rainfall in 1872 was 35·52; this was sufficient to fill the tanks; and as the water is stored all over the country, the deficiency this year I do not think will cause any scarcity, and there will be abundance to answer all purposes till the next monsoon. Climate.

The health of the regiment since its arrival here in the beginning of the year has been very fair, and, as a rule, the physique of the men is much improved; this I entirely attribute to the change from Nagode.

Marches.—The left wing was on the march from the 14th December 1872 till the 9th of January 1873, the date of its arrival at this station. There were very few cases of sickness on the march, and those who reported sick were, as a rule, suffering from slight complaints. Marches.

Guard-rooms.—The position of the Serjeants' quarters, quarter-guard, and place-of-arms, &c., is on well-elevated ground. All the buildings face due north, and open all sides except the south. Guard-rooms.

The site occupied by these buildings is, I consider, healthy from their elevation and openness.

Sepoy huts. *Sepoy huts.*—The huts occupied by the men are ventilated by means of the doors, and the roof also allows the air to escape; these means are considered sufficient.

The drainage in the regimental lines I consider defective, and this is to a great extent due to the want of pucka drains. The trenches dug before the rains soon become useless except they are constantly looked after. However the sanitary means now employed keep the lines comparatively clean. The night-soil is daily removed from every house, and as the latrines in the courtyards contain ashes, &c., nearly all the liquid excreta becomes absorbed. It would be decidedly a great improvement if the men would use dry earth, and so prevent to a great extent the soil from being saturated with the excreta.

The defective drainage in the lines has been brought on previous occasions to the notice of the authorities.

Nuisance. *Nuisance.*—None that I am aware of.

Water-supply. *Water-supply.*—The water during the year has been procured from the wells in the vicinity of the lines, ample in quantity and of good quality. I recommended two wells, from which water is never drawn for drinking or culinary purposes, should be filled in, as the water they contain is objectionable. One of the wells is situated in the centre of the lines, the other in one of the courtyards. I also brought to notice it would be advisable to flag round *each* well, and have a small drain which would carry away all the refuse water to some distance, and at the same time wall in the wells, and have the water drawn up by pullies. In case these measures are carried out, the water would be kept free from the impurities which are likely to reach the wells by means of chatties and that objectionable practice the natives have of washing their feet in the well when they go for water. No steps have as yet been taken to carry out the recommendations.

Sanitary arrangements. *Sanitary arrangements.*—On the whole, and as far as practicable, the sanitary arrangements have been satisfactory and very fairly looked after, and, as far as I am aware, there has been no local cause of disease.

Diet. *Diet.*—Rice, the chief article of diet used by natives, was easily procured at a fair price. Mutton was of indifferent quality. Vegetables were plentiful except in the hot weather.

The sepoys receive compensation on account of the dearness of rice.

Taking the duties the men are called on to perform, I decidedly think they should eat meat oftener than they do. As the sepoy has on an average five individuals along with himself to support on his pay, it is impossible for him to have meat oftener than once or twice a week.

Clothing. *Clothing.*—The clothing worn by the men has been sufficient and adapted to the climate.

Foot-soreness. *Foot-soreness.*—There has been foot-sores amongst the men from defective boots and from not wearing socks.

The boots are kept as soft as possible. The sores are of a slight nature, and a few days in hospital is, as a rule, sufficient to allow the patient to return to his duty.

Duty and exercises. *Duty and exercises.*—The men perform the ordinary garrison duties, drills, &c., and once a week during cold season there is a brigade, at which all the troops in cantonment are present. Average number of nights in bed during the week 5·33.

The duty performed has no ill-effect on their health.

Drill. *Drill.*—As a rule the men have drills twice a day, in the mornings from 6 to 7-30 and in the evenings from 4-30 to 5-30. The health of the men has not been affected by the amount of drills.

Exercises. *Exercises.*—A few of the men occupy their spare time in the regimental gardens. Had cricket once a week, in which several of the men joined, but lately it was to be given up, as both officers and men have all their time taken up going through the annual musketry course.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the buildings has been satisfactory.

Vaccination. *Vaccination.*—All the females who were unprotected have been vaccinated, and also the children. There are about 200 men yet to be vaccinated, and I propose vaccinating them at end of annual musketry course. There has been no case of small-pox either amongst the men or the families. Total vaccinated 398.

Diseases. *Diseases.*—No epidemic disease of any kind has occurred.

When the regiment arrived from Nagode the men were in a weakly condition, as they suffered when in that station very severely from ague. But this climate has agreed with them remarkably well, and they have enjoyed on the whole good health during the past year.

Total admissions 425, out of which ague gave rise to 147, chronic rheumatism 28, conjunctivitis 23, general debility 19, diarrhœa 14, dysentery 6, phthisis pulmonalis 5, all other diseases 183.

Total deaths 5 : 1 from abscess (scrofulous), phthisis pulmonalis 2, ague 1, general debility 1. This death-rate may appear very high as compared with the previous years, but I do not think it is in any way attributable to this climate. In the two deaths from

phthisis pulmonalis both the men were suffering from it for a long time before they came to this station, and one died shortly after he arrived. In the case of abscess the patient was sent on sick certificate from Nagode and died at his village. The case of general debility proved fatal about two months after the man's arrival; he had been also suffering from diabetes and repeated attacks of ague, so that little benefit could be derived from change of climate.

The death is shown to have occurred from ague; the patient was suffering from it for a long time; he had also enlargement of the spleen, and was in a weakly condition for some time previous.

The cases of phthisis pulmonalis were due to an hereditary taint.

Ventilation of the hospital.

Ventilation of the hospital.—Ventilation in hospital satisfactory.

No recommendations have been made.

No overcrowding.

Condition of the drainage and latrines.

Condition of the drainage and latrines.—Drainage satisfactory. A new latrine has been built, in which the dry-earth system is carried out (and coal-tar is used when necessary.)

No representations have been made.

Hospital water-supply.

Hospital water-supply.—Water is carried to hospital by the regimental puckallies.

General conclusions.

General conclusions.—The health of the regiment since its arrival in Secunderabad has been on the whole "fair," considering a great number of them were in a weakly condition when they first came, which is attributable to their four years' residence at Nagode, where they suffered a good deal from ague. The mortality this year is due to a greater extent to constitutional than climatic causes.

The average strength of the 6th Regiment during the year is as follows:—Non-Commissioned Officers, rank and file, 688. Total admissions from all causes 425, and there were 5 deaths. Ague gave rise to 147 admissions. As a rule, the fever was of a mild type and very amenable to treatment. Admissions from chronic rheumatism 28, from general debility 19, dysentery 6, and from diarrhœa 14. Deaths, one from ague, two from phthisis pulmonalis, one from general debility, and one from abscess, accompanied with scrofula; the last man was sent on sick certificate from Nagode to his native place in 1872, but died in the beginning of the year under review. Percentage of total sick to average strength 61·75. Percentage of deaths to average strength. 72.

Contrasted with the three previous years it will be seen there have been fewer admissions, but the death-rate is higher.

Years.	Strength.	Sick.	Died.	Invalided.	Average Daily Sick.	Admitted.	Died.	Invalided.	Average Daily Sick.
1870 ...	689·83	480	6	...	26·35	695·82	8·69	...	38·19
1871 ...	677·75	1,017	5	...	28·84	1500·55	7·37	...	52·55
1872 ...	695·49	746	1	5	19·63	1072·62	1·43	7·19	28·22
1873 ...	688	425	5	8	16·05	617·73	7·26	11·62	23·32

Out of the five deaths shown to have occurred this year, I think three of them cannot be attributable in any way to the climate, as one died on sick certificate and was never at this station. In the other two cases the men had been suffering from phthisis pulmonalis for a considerable time before their arrival.

The families have been on the whole healthy during the year, no epidemic of any kind appeared, and, with the exception of a few cases of ague and diarrhœa, there was very little sickness.

Deputy Surgeon-General Barclay inspected this corps on the 8th October 1873, and reports as follows:—

Barracks.

Barracks.—This corps occupies the Mahudpully Lines, vacated by the 5th Regiment Native Infantry. They are clean and in good order. No change has been made in them during the year.

Drainage is natural by configuration of the ground aided by open side-channels cut in the soil, and in a few places partially lined with rough stone.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The guard-rooms, cells, school-rooms, and Staff Serjeant's quarters are clean and in good order. The floor of the Staff Serjeant's cook-room is below the level of the ground, and it gets flooded when a heavy shower falls. He also complains that this compound being unenclosed, his latrine is made use of by persons from outside, so that he has difficulty in keeping it clean.

There is no public latrine except a small one for the barrack guard. It is very clean, and coal-tar is freely used. The private latrines in the enclosures of the huts are kept clean by the use of dry earth and daily removal of excreta. There are no cess-pools or foul drains.

The barrack guard-room is rather small, and low in the roof.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—The conservancy of the neighbourhood is satisfactory.

Hospital.

Hospital.—No change has been made in the hospital during the past year. It is clean and in good repair, and well ventilated. Accommodation has been ample.

Drainage is natural and sufficient; water of good quality is brought by puckallies from the wells in the lines. There are no cess-pools or foul drains.

A new latrine has just been built on the model of that of the Cavalry Hospital at Bowenpilly. It is of ample size, well ventilated, and in excellent order. Dry earth and coal-tar are used.

A dead-house is required.

29th Regiment Native Infantry.

STATION—SECUNDERABAD.

Arrived from Hong-Kong 19th February 1871.

Average strength	704
Do. present	684
Admissions	410
Daily sick	18
Deaths in hospital	2
Do. out of hospital	2
Pensioned	10
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Hong-Kong	134·73	3·94	3·28	·26	...
1871 ...	Secunderabad	55·93	2·18	1·89	5·42	2·14
1872 ...	Do.	42·97	2·12	1·21	1·75	1·07
Average ...	.....	77·87	2·74	2·12	2·47	1·07
1873 ...	Secunderabad...	59·94	2·63	·56	1·42	·56

The following medical officers were in charge during the year:—

Surgeon-Major Busteed.
Do. Wilkins.

These officers report as follows:—

Climate.

Climate.—Averagely healthy.

Marches.

Marches.—None.

Sepoy huts.

Sepoy huts.—The ventilation is ample and the drainage fair.

Water-supply.

Water-supply.—Good and ample.

Sanitary arrangements.

Sanitary arrangements.—Sanitary arrangements are good.

Diet.

Diet.—Provisions are dear as compared to many stations in India; men receive rice-money.

The men do not receive rations, but diet themselves; the meat sold in the regimental bazaar is inspected daily by the medical officer.

Clothing.

Clothing.—Good and suited to the climate.

Foot-soreness.

Foot-soreness.—None worthy of note.

Duty and exercises.

Duty and exercises.—The duties have not been in any way heavy.

Average nights in bed per week, five.

Drill.

Drill.—About four times a week, from one to two hours in the morning, and occasionally in the afternoon. No unfavorable results.

Condition of lock-up rooms and prison cells.—Good in every respect. Condition of lock-up rooms, &c.

Vaccination.—Vaccination has been carefully attended to, and at the present time there are no unprotected persons in the lines. Vaccination.

No death from small-pox.

Diseases.—It cannot be said that there has been any epidemic during the past year in the regiment. The chief diseases have been slight cases of fever and ague, sub-acute rheumatism, and diarrhœa. Diseases.

Of phithisis pulmonalis no case has occurred.

Ventilation of the hospital.—Good in every respect. Ventilation of the hospital.

No overcrowding.

Drainage and latrines.—Good. Drainage and latrines.

Dry earth not used.

Hospital water-supply.—Good and ample. Hospital water-supply.

General conclusions.—The health of the regiment during the past year has been in every way satisfactory. General conclusions.

Surgeon-Major Busteed, on giving over charge of the regiment on the 11th September 1873, left on record the following remarks :—

During the last few weeks there has been a great increase in the number of admissions from "fever." The cases are for the most part very slight, lasting only three or four days. About 50 per cent. of them present eruptions of *herpes* on the lips, and other signs of what at home would be called "a heavy cold." I have called these cases "ague," though with some doubt of the appropriateness of the designation. The majority of them present no intermissions or other periodic phenomena ; and in cases where intermissions are well marked, I generally find that the patient has suffered from fever before in Hong-Kong or elsewhere. I have no proof that these cases are caused by present "malaria." The cold high winds and the heavy rains of this season are quite sufficient, I imagine, to account for the fresh cases and for the return of real "ague" in men who have previously suffered from it.

Vaccination has gone on fairly up to the end of last month. Sixty-two children were born in the lines and 11 died, but with those remaining over from last year unvaccinated we vaccinated in the above period 83, of which 72 were successful.

The objection of the sepoy to have his children vaccinated is, as far as my experience goes, very much increased when we propose that the operation shall be performed in early infancy ; with us infantine vaccination is very properly held to be a sanitary necessity, but to vaccinate children under six months of age is, in the sepoy's opinion, almost unjustifiable ; by dint of looking them up and reporting them, we get them to submit, but I must confess they submit with a very bad grace.

A very unfortunate result succeeds. To take lymph back from such young children is (they think) to take away their strength, and make them puny for long years after. Accordingly on the sixth or seventh day, when warned to bring the child to hospital next morning to give back some of the lymph for use in fresh cases, the vesicles are destroyed with a poultice of leaves. The grandmother is always (alleged) culprit. The sepoy "knows nothing about it ;" it is difficult to deal with such cases. All argument is thrown away. In vain I point to Europeans and ask "are these men puny, they have all been vaccinated in early infancy, and all have had lymph extracted ?" "It is quite another matter with Europeans" they reply, "your constitution is very different."

For example sake I brought one palpable case of destroyed vesicle up to the Commandant, and a reprimand was administered ; but when it is perfectly well known on all hands, and constantly preached and insisted on that vaccination is *entirely voluntary*, it is felt that the due seasoning of a reprimand is rather a delicate and difficult operation. In fact, the present position of the vaccination question in native lines, "no compulsion, only you must," cannot fail to put both Commandants and Medical Officers in a false and unpleasant position at times when obstruction is encountered.

I offered one anna some time ago for each successful vesicle brought back ; a very small sum, but sufficient, I hoped, to influence the warning, and turn scale in my favor. It was no use ; no annas were claimed.

It happened very unfortunately that three children died unexpectedly within the past quarter soon after having been vaccinated. One died on the sixth day from "colic," another on the eleventh day from "convulsion," and the third on the twentieth day also from "convulsion." I need hardly say that their deaths were totally unconnected with vaccination, but equally I need hardly say that their relatives believe the exact contrary, and that the cause of vaccination in the lines is likely to suffer for some time in consequence ; this is not wonderful. Even in enlightened England such ignorance and prejudice are found to crop up occasionally.

I think with my present experience I should be inclined for the future to compromise matters with the prevailing prejudices, and not hold out for vaccination within six months.

It would be a great blessing if the female vaccinators recently proposed were introduced. They would be more useful than Hospital Assistants in many ways. They could, for instance,

more readily visit the houses of vaccinated children and see whether the arms were taking or not, and keep watch on the successful cases till fit to take lymph from. At present, with the men being so frequently absent from their huts, we often find it very difficult to get any information about children within the few days following vaccination.

Rows of trees have recently been planted in the several streets of the lines. Shade and shelter are much required.

A regimental latrine has recently been completed and brought into use. The recent very heavy rains have knocked down one of the enclosing walls, but still it is in use. The regiment has just applied for 50 gallons of coal-tar annually for use therein, and I hope it will be granted; nothing but the just application of coal-tar in such buildings can render them free from smell, or frequent soaking of filth into seats, drains, and walls. I think it may fairly be doubted that such buildings are unmixed benefits. Without the most careful watching they would simply serve to concentrate and bring to a focus all the bad smells and offensiveness of the entire neighbourhood, and at the fresh appearance of a cholera epidemic it would, I apprehend, be the duty of the medical officer to recommend their immediate closure, whether they were well kept or not; a single cholera case visiting a public latrine might be the means of inflicting an entire regiment.

Dr. Wilkins, who succeeded to the medical charge, writes as follows :—

During the three months that have elapsed since taking over medical charge of the regiment from Surgeon-Major Busteed, little worthy of note with regard to sickness has occurred; the large majority of cases treated have been either quotidian or tertian ague; with fewer exceptions of a mild type, I cannot, however, fail to observe that the "physique" of the men generally has greatly deteriorated since I left it in April 1872, and I think the reason is obvious: the men had then only returned from China little more than one year, and had not had time to get rid of the advantages derived from their three years' sojourn in Hong-Kong, where they not only enjoyed the advantage of a far better market than any in any Indian station in the Madras Presidency, but also received extra pay and free rations of excellent quality and abundant in quantity; they were, therefore, enabled to save considerable sums, which helped to supplement their comparatively small Indian pay. The men have now for a long period been encumbered with the numerous relations and followers always attached to a Madras Regiment, and I believe it to be quite impossible, at an expensive station like this, for the sepoy, if a married man, to feed himself properly.

Vaccination. *Vaccination.*—On my resuming charge I found a large number of adults (282) unprotected. I endeavoured (as I am aware Dr. Busteed had done) to induce them by every means in my power (in which I was seconded by the Commandant) to submit to the operation, but without any avail; fortunately, however, since then a female vaccinator was placed at my disposal, and, I believe, at the present time there are no unprotected persons living in the lines.

The regimental latrine has been put in proper repair and tar freely used. In my opinion, if the sweepers are kept to their work it will be a very great improvement on permitting the men to go where they like. I am glad to be able to report that the old European Barracks, which greatly obstructed the free circulation of air through the lines, either have been, or are being, pulled down.

Deputy Surgeon-General Barclay inspected this corps on the 10th October 1873, and reports as follows :—

Barracks. *Barracks.*—The lines of this regiment have been completed during the past year, and are in excellent order. The pit mentioned in last year's report opposite No. 3 Company on the west has been filled in, and the defects in drainage pointed out at that point, as well as opposite Nos. 1 and 2 Companies on the east, have been remedied.

The drainage is good of its kind, channels cut in the soil, the configuration of the ground being favorable. Trees have been planted along the centre of the streets.

The old European Barracks are being demolished, and the materials removed by the Public Works Department.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—The guard-rooms, cells, school-room, and Staff Serjeant's quarters are clean and in good repair.

A public latrine has been provided to the west of the lines and at a suitable distance. It has been somewhat damaged by the rains, but is otherwise in good order. Excreta removed daily to a distance and buried. Coal-tar is in use.

The approach to the latrine needs cleaning and widening, and this will be done immediately.

There are no cess-pools or foul drains.

Conservancy of the neighbourhood. *Conservancy of the neighbourhood.*—The conservancy of the neighbourhood is satisfactory on the whole. Some weeks ago complaint was made of an offensive smell coming from manured fields to the south-west of the lines and beyond cantonment limits. The Secretary to the Cantonment Committee communicated on the subject with His Highness the Nizam's officials, who have promised that the nuisance complained of shall not recur.

The Nizam's villages of Russepore and Beguntapore on the east and west of the lines are clean.

Hospital.—The hospital is clean and in good repair, well ventilated, and of more than sufficient size. Hospital.

During the past year the store-room has been fitted with shelves for medicines, &c. No other changes have been made.

Drainage is natural and sufficient.

Water of good quality brought by puckallies from wells in the lines.

The latrine is of ample size and in excellent order.

No cess-pools or foul drains.

40th Regiment Native Infantry.

Station—Secunderabad.

Arrived from Saugor 18th February 1873.

Average strength	643
Do. present	643
Admissions	753
Daily sick	24
Deaths in hospital	9
Do. out of hospital	2
Pensioned	3
Sick leave	5

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Saugor	123·35	5·87	2·09	·83	·83
1871 ...	Do.	113·54	6·25	1·27	1·98	·99
1872 ...	Do.	58·34	2·65	1·15	3·47	·86
Average ...	.....	98·41	4·92	1·50	2·09	·89
1873 ...	Secunderabad	117·10	3·73	1·71	·46	·77

The following medical officers held charge of this corps during the year :—

Surgeon-Major S. F. Trimnell.
Do. J. T. Williams.
Surgeon A. F. Dobson, M.D.
Surgeon-Major E. Dixon.

The last-named officer reports as follows :—

Climate.—Having joined the regiment at this station only 3½ months before the end of the year, I can only notice what I have observed in that period. The climate during the latter end of September and October was mild, but during November and December there was a greater alteration of temperature in the 24 hours, the nights and more especially the mornings being raw and cold, whilst the days were hot for the time of the year. Coughs and colds prevailed during the last-named period as might be expected. Climate.

Marches.—The right wing of the regiment marched from Saugor on the 15th January to join the left wing and head-quarters at Secunderabad. It marched by regular stages from Saugor to Jubbulpore, from whence it travelled by rail to Goolburga, and from thence marched by regular stages to its destination, which it reached on the 17th of February. Marches.

Sepoy huts.—Ventilation of guard-room and cells excellent. That of the huts chiefly maintained by doorways. The drains are open, numerous enough, kept very clean, and are properly attended to. Sepoy huts.

Nuisance.—None. Nuisance.

Water-supply. *Water-supply.*—Water plentiful. There are ten wells situated in the regimental lines, only three of which are fit for drinking and cooking purposes. The rest of them have been pronounced "noxious" by the Analyst of Potable Waters.

Sanitary arrangements. *Sanitary arrangements.*—The lines have been kept scrupulously clean, great attention having been paid to them in that respect. The local causes of diseases are supposed to be the neighbouring paddy fields, which nearly surround them, to which may be added a large tank situated to the south-westward of the lines, near the Post Office, where there is a large surface of shoal water always drying up.

Diet. *Diet.*—Provisions have been plentiful and reasonable in price on the whole. Vegetables were abundant. The native ranks of the regiment have received compensation on account of the dearness of rice.

Clothing. *Clothing.*—Clothing sufficient and adapted to the climate, excepting the caps, which do not protect the men's heads enough from the sun.

Foot-soreness. *Foot-soreness.*—A good many men suffered from shoe-galls, and was due in a great measure to their own neglect in not keeping their boots sufficiently soft by greasing them from time to time as has been frequently explained to them.

Duty and exercises. *Duty and exercises.*—The duty has consisted in the performance of the usual parades and guards of a Native Infantry Regiment, and its effects on health have not been prejudicial. The average number of nights the men had in bed was four.

Drill. *Drill.*—The parades during the drill season were held morning and evening for four days out of the week; but, as fever was prevailing during the greater portion of that period in the regiment, they seldom exceeded half an hour in duration. The hours at which they took place varied according to the season of the year.

Exercises. *Exercises.*—Many of the men of the regiment were employed during their leisure-time in cultivating the regimental garden, which is well kept up.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the solitary cells has been satisfactory as regards the conditions named during the year.

Vaccination. *Vaccination.*—All the men of the regiment are protected against small-pox, either by having had that disease or by vaccination. All the children have been vaccinated with the exception of fourteen, who are to undergo the operation as soon as possible. A Mahomedan woman sent up from Madras to this station by the Superintendent of Vaccination for the purpose will commence vaccinating the women of the regiment, both the sepoys' wives and camp followers, as soon as she has operated upon those of another Native Infantry Regiment.

About the middle of December a private of the regiment, and two days after a child, three years old, the son of another private, were admitted with small-pox, and accommodated with tents pitched for the purpose, from which all communication with the regimental lines was cut off. How they contracted the disease could not be ascertained. Both had been vaccinated, and the private had also had the disease once before.

Diseases. *Diseases.*—Intermittent fever prevailed in the regiment, both among the men and their families, from about the beginning of September till the latter part of December. The cases were mostly of a mild type and amenable to ordinary treatment. Many of the men had suffered from it whilst the regiment was at Saugor, from which station the left wing arrived towards the end of December 1873 and the right one about the middle of February last, and who appeared not to have got fairly rid of it since, though the chief cause of fever prevailing in a regiment occupying these lines may be attributed to what has already been mentioned above.

Four cases of phthisis pulmonalis were admitted during the year, three of which terminated fatally, and were the sequel of fever contracted at Saugor, a result, it is said, of not unfrequent occurrence among persons contracting fever in the present Native Infantry Lines at that station.

Ventilation of the hospital. *Ventilation of the hospital.*—Ventilation of the hospital is perfect.

During the last quarter of the year, in consequence of having a larger number of sick than the hospital could accommodate, tents were pitched in the compound for the use of those requiring them.

Drainage and latrines. *Drainage and latrines.*—Drainage natural and good. The latrine is built on a good principle, and large enough for the purpose it is intended. The dry-earth system is adopted and coal-tar is periodically applied to seats and all round the inside of the walls four feet from the ground.

Hospital water-supply. *Hospital water-supply.*—Water is supplied from the wells in the lines.

General conclusions. *General conclusions.*—For the first eight months of the year the amount of sickness in the regiment was very moderate, but during the last four months fever, both among the men of the regiment and their families, prevailed. It has been already stated what its type was in another part of this report, and the probable causes which gave rise to it.

Deputy Surgeon-General Barclay inspected this corps on the 13th October 1873, and reports as follows:—

Barracks. *Barracks.*—This regiment occupies the "Tar Bund" Lines, vacated by the 24th Regiment Native Infantry. They are clean and well cared for, and have been improved during

the past year by the removal of some of the large granite boulders that obstruct the streets here and there.

The drainage is by natural configuration of the ground, aided by side-channels cut in the soil.

Sanitary condition of all buildings.—The guard-rooms, cells, school-rooms, and Staff Serjeant's quarters are clean and in good repair. The Staff Serjeant's latrine had not yet been cleaned when visited, and was offensive. Sanitary condition of all buildings.

There is a large public latrine to the north of the lines, and a small one east of the barrack for the men on guard. Both are in good order. The approaches have got partially overgrown with grass during the rains, and need cleaning. The medical officer has been requested to bring this to the notice of the regimental authorities.

There are no cess-pools or foul drains.

Conservancy of the neighbourhood.—The conservancy of the neighbourhood is satisfactory. Conservancy of the neighbourhood.

Hospital.—No change has been made in the hospital during the year. It is clean, in good repair, and well ventilated. The accommodation has been ample except during the last few weeks, when fever has been rather prevalent. Even then with a little management it has been sufficient. Hospital.

Water of good quality brought by puckallies from the wells in the lines. Drainage natural and sufficient.

A new latrine of ample size and well ventilated, on the model of the Cavalry Hospital latrine at Bowenpilly, has just been built. It is in good order. Dry earth and coal-tar in use.

A dead-house is needed.

Detachment Sappers and Miners.

Station—Secunderabad.

Average strength	320
Do. present	320
Admissions	667
Daily sick	27
Deaths in hospital	...
Do. out of hospital	1
Pensioned	2
Sick leave	3

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Secunderabad	78·79	2·84	1·26	...	...
1871 ...	Do.	193·41	4·70	1·37	·27	2·47
1872 ...	Do.	174·61	5·88	2·27	1·42	2·55
Average ...	.....	148·93	4·71	1·63	·56	1·67
1873 ...	Secunderabad	208·43	8·43	·31	·62	·93

The following medical officers have been in charge of this corps during the year :—

Surgeon-Major McLeod, M.D.
Do. W. J. Busteed.
Do. S. F. Trimnell.

The last-named officer reports as follows :—

Climate.—The past has been to some extent an exceptional year as regards the various atmospheric phenomena observed. During the early months of the year the thermometer was below that of the corresponding months of the previous one. In January last the lowest Climate.

minimum reading was 43·6°. In that of 1872 it was 53·2°. The highest reading 102·1° against 110°. The rainfall in 1873 was 21·83 against 35·52 in 1872.

Marches. *Marches.*—None.

Sepoy huts. *Sepoy huts.*—The detachment of the Sappers as a part of a native corps do not occupy barracks, but small huts, the walls of which are built of mud and tiled, running north and south. The elevation is good, but the site has been unfortunately chosen, being so placed that the prevailing winds during the greater part of the year blows across a tank and an extensive swamp directly on to the lines. The consequence is that the locality has proved most inimical to health.

The construction of the huts is faulty, as it may be said that nearly a whole company is placed under one continuous roof, instead of in detached blocks of threes or fours. Another defect is that, instead of the floors of each individual hut raised above the ground by a foot or more, the builders dug out earth so that the floors are below the surface, and in the monsoon time must be damp and unwholesome. The huts are small and low, and do not admit of much elbow room to their inmates.

The drainage which is surface only, is defective, inasmuch as that the blocks of huts have been erected across the natural slope towards the tank to the west of the lines. The ventilation is such as usually obtains among the natives. No improvement is practicable in such diminutive holdings.

Nuisance. *Nuisance.*—None.

Water-supply. *Water-supply.*—The water-supply is deficient, the higher castemen only being allowed to draw water from a well near at hand, whilst the low castes have to go to a well near to the tank, or draw their water from it.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements in the lines are on the whole good and effective.

Diet. *Diet.*—Provisions, such as rice, meat, and vegetables, are procurable, the latter being somewhat scarce, but all are dear.

The usual rice money on account of dearness of this article of consumption has been issued to the Sappers as to other native troops.

From the anæmic condition of some of the men it is probable that they are inefficiently fed, the fault being their own, more money being spent in drink than in wholesome food.

Clothing. *Clothing.*—Sufficient and adapted to the climate.

Foot-soreness. *Foot-soreness.*—None.

Duty and exercises. *Duty and exercises.*—The detachment of the Sappers are chiefly employed in making buildings, roads, drains, &c., besides drills, and have, therefore, a harder work to perform than native troops generally, but it cannot be said that the work is too severe. Six nights in bed.

Drill. *Drill.*—The Sappers are drilled, but not to such an extent as to prove inimical to health.

Condition of lock-up rooms, &c. *Condition of lock-up rooms and prison cells.*—Satisfactory.

Vaccination. *Vaccination.*—Good: no cases and deaths from small-pox have occurred: thirty-seven cases were re-vaccinated, twenty-four of which proved successful, while thirteen failed.

Diseases. *Diseases.*—No severe epidemic disease has broken out during the year under review, but ague has been very rife in the detachment of Sappers and Miners; indeed a great deal of sickness has prevailed, not only among the men, but also with the families. The admission into hospital has borne the large proportion to strength of 209 to 100. In other words, there has been rather more than an average of two admissions to each unit. This large proportion of sickness is apparently attributable to the site of the lines, which, although high and dry, is exposed by its positions to winds which blow during a great part of the year across a tank and an extensive swamp directly on to them, and possibly also to the water which is obtained from it and the well near it. This supposition receives confirmation from the fact that the company working at Bolarum suffers in a noticeably less degree from sickness.

The other chest diseases, of which bronchitis is the most prevalent, may be attributable to variations of temperature, this being a disease frequently met with among the civil population as well.

Ventilation of the hospital. *Ventilation of the hospital.*—Ventilation excellent. During a short time when ague prevailed extensively there was a slight leaning to overcrowding.

Drainage and latrines. *Drainage and latrines.*—The drainage of the hospital enclosure is very fair. The dry-earth system is to some extent carried out, and the latrines are kept in good order.

Hospital water-supply. *Hospital water-supply.*—The supply is good.

General conclusions. *General conclusions.*—The Cantonment Hospital is available for the sick of the detachment of Sappers and Miners and of the garrison details, the latter consisting mostly of Natives, though a few Europeans, belonging to the Ordnance Department, and pensioners are occasionally admitted.

NAGPORE FORCE.

Average strength	3,081
Do. present	2,959
Total admissions	3,105
Daily sick	86
Deaths in hospital	30
Do. out of hospital...	11
Pensioned	80
Sick leave	45

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Rate per Cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	93·80	3·27	1·65	2·38	1·29
1871	97·20	3·04	·68	1·93	1·58
1872	114·07	3·25	1·36	1·58	1·58
Average	101·69	3·18	1·23	1·96	1·48
1873	104·93	2·90	1·33	2·59	1·46

The following corps were serving in the division on the 31st of December 1873 :—

2nd Regiment, Light Cavalry.
35th do. Native Infantry.
8th do. do. do.
22nd do. do. do.
31st do. Light do.

Deputy Surgeon-General Tribe was in charge of this division during the year, and submits the annual report as follows :—

Native lines.—The sanitary condition of the native lines at Raipur, Hoshangabad, and Chanda have little to be desired, except that the old lines at Chanda require to be levelled. The same may be said of the lines at Kamptbi, with the exception of the 35th, which are capable of great improvements by levelling, drainage, &c. The barracks at Sironcha have been repaired, and appear now to be in fair order. The state of the barracks has repeatedly been brought to the notice of the authorities, but hitherto with no practical result. The lines at Seetabuldee are situated in a swamp, and, I regret to say, that I can see no prospect of their speedy removal to higher ground. Native lines.

Rations.—The monsoon has been abundant, and grain, not now dear, appears to be becoming cheaper. Rations.

Hospitals.—All the hospitals at Kamptee are well suited to their purpose. That at Hoshangabad appears to have been completely rebuilt, except the flooring of the wards, but no alteration whatever has been made in it. That at Raipur is on the old standard plan, and is a most comfortless-looking building. At Chanda the hospital, being intended for the sick of a regiment, could accommodate the whole company. At Sironcha a very nice and suitable little hospital has been erected with every convenience. Hospitals.

Bedding.—The supply is everywhere ample and usually more than what is allowed by regulation. The clothing is changed according to the weather. Bedding.

Water-supply.—At all the stations in the Central Provinces, with the exception of Raipur, the water is good and abundant. At Raipur there is always a deficiency of water in the hot weather, and always will be unless some plan be adopted for impounding the water of some river in its vicinity and conveying it to Raipur. I believe this would greatly improve the health of the place, as the tanks, now so necessary, are at the same time fruitful sources of disease, might be filled up. Water-supply.

Conservancy.—The conservancy is at all the stations in these provinces admirable, and leaves little to be desired. Conservancy.

Diseases.—The following table shows the classes, &c., by which the admissions and deaths of the past year were caused, as well as those of the two previous years ; the Europeans are included :— Diseases.

Years	1873.		1872.		1871.	
Strength	2,989		2,980		2,852	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Class I.—*General Diseases.*						
Sub-division A.	2,463	11	1,688	18	1,388	7
Do. B.	190	5	232	5	291	3
Total	2,653	16	1,920	23	1,679	10
Class II.—*Local Diseases.*						
1. Diseases of the nervous system	14	...	24	1	37	...
2. Do. eye	201	...	109	...	179	...
3. Do. ear	14	...	24	...	13	...
4. Do. nose	...	...	1	...	1	...
5. Do. circulatory system	27	1	4	...	11	2
6. Do. absorbent do.	2	...	8	...	5	...
7. Do. ductless glands	...	...	...	...	...	...
8. Do. respiratory system	52	2	65	10	82	3
9. Do. digestive do.	203	4	324	4	204	2
10. Do. urinary do.	26	1	49	...	31	...
11. Do. generative do.	21	...	11	...	11	...
12. Do. organs of locomotion	21	...	29	...	14	...
13. Do. cellular tissue	51	...	79	...	66	...
14. Do. cutaneous system	237	...	393	...	288	...
Total	872	8	1,120	15	942	7
Class III.—*Conditions.*						
General debility	69	3	53	...	66	...
Class IV.—*Poisons*	4	...	1	...	2	...
Class V.—*Injuries.*						
Accidental	130	2	223	1	218	...
Class VI.—*Surgical Operations.*						
Not yet diagnosed	22	...	2	...	1	...
Grand Total	3,750	29	3,319	39	2,908	17

From this table it would appear that the past year has been unusually unhealthy; but if the 1,314 admissions from dengue be subtracted, it shows a particularly healthy season, which in fact it has been, considering that the disease of the country is malarious fever. The average daily sick has largely increased, being no fewer than 139 to 94 in 1872 and 88 in 1871. In stating, however, that the past year has been an healthy one, I must except two places, *viz.*, Sironcha and Seetabuldee, the latter, I believe, entirely owing to preventible causes, in fact to the utter neglect of one of the most universally-recognised maxims of preventive medicine "never to locate troops in a swamp." The whole district of Sironcha, so far as I can hear, has been unusually unhealthy; strange that the cause which has apparently made other portions of the Central Provinces unusually healthy should have made Sironcha unhealthy, but then geographically it does not belong to the Central Provinces. Does it depend upon difference of geological formation?

The following table exhibits the number of admissions from ague and the total number in each station without reference to regiments for 1872-73:—

Stations.	1873.		1872.		1871.	
	Admissions.	Ague.	Admissions.	Ague.	Admissions.	Ague.
Kamptee	1,560	244	1,243	568	1,003	425
Raipur	497	188	597	293	677	385
Hoshungabad	301	97	315	394	235	125
Seetabuldee	1,043	172	561	287	475	235
Chanda	134	70	189	72	138	56
Sironcha	230	73	309	93	253	94
Total	3,765	844	3,214	1,707	2,781	1,320

From this it will be seen that the admissions in every station, except Kamptee and Seetabuldee, where dengue has extensively prevailed, have been less numerous than in 1872,

as have the number of admissions from ague. Even Sironcha, where there has been an unusual amount of sickness among the civil population shows well. As for Seetabuldee, I expect that, unless the site be drained or the lines removed, the troops located there will yearly become more and more unhealthy.

The following table shows the number of casualties in each regiment and the diseases by which they occurred :—

Corps, &c.	Diarrhœa.	Ague.	Dengue.	Anæmia.	General Debility.	Dengue Endocarditis.	Beri-beri.	Pneumonia.	Simple Cholera.	Phthisis Pulmonalis.	Stricture of Urethra.	Enteritis.	Dysentery.	Burns.	Small-pox.	Ulcer of Stomach.	Total.
2nd Regiment Light Cavalry.	...	...	...	...	...	...	..	1	...	...	1	...	...	...	...	...	2
35th do. Native Infy...	1	2	1	1	1	1	2	1	...	...	...	...	...	...	...	...	10
31st do. do. ...	...	...	...	...	1	...	...	...	5	...	...	1	1	1	...	...	9
20th do. do. ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	2
22nd do. do. ...	...	...	3	...	...	...	...	...	...	1	1	...	...	...	...	...	5
Detail, Kamptee	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Total...	1	2	4	1	2	1	2	2	5	2	2	1	1	1	1	1	29

2nd Regiment Light Cavalry.

Station—Kamptee.

Arrived from Bellary 12th February 1873.

Average strength	294
Do. present	239
Admissions	340
Daily sick	11
Deaths in hospital	2
Do. out of hospital	2
Pensioned	11
Sick leave	6

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Bellary...	33·21	1·45	·72	2·91	...
1871 ...	Do.	45·70	1·95	·61	1·23	1·23
1872 ...	Near Secunderabad	75·60	2·80	·97	5·84	...
Average ...	.....	51·50	2·06	·76	3·32	·41
1873 ...	Kamptee	142·25	4·60	1·36	3·74	2·04

Surgeon-Major Dixon was in medical charge of this corps for a few weeks at the commencement of the year, when Surgeon-Major Arnold Smith, M.D., rejoined from England and re-assumed medical charge. He reports as follows :—

Annual Report of the 2nd Regiment, Madras Light Cavalry, for the year 1873.

Section I.

Topographical—Sanitary—Miscellaneous.

Meteorological observations.—No trustworthy meteorological observations are kept up in Kamptee, as no instruments have been supplied, and it is, I think, a subject of regret that so large a station as this should be without an Observatory. Meteorogical observations.

Nagpore Observatory.

Nagpore Observatory.—The only regular observations are those kept at Nagpore, distant 10 miles to the south.

These are published in the weekly gazette, and the following tables, &c., are compiled from this source.

Seasonal phenomena.

Seasonal phenomena.—The past year has been remarkable for a mild, although somewhat prolonged, hot season and a very deficient rainfall.

The cold season may be said to commence on the 1st of October and last into March.

After the 15th of the latter month the hot season fairly commences and continues till the 15th of June.

From this time till the end of September rain usually falls heavily from the south-west. There is, as a general rule, but little rain from the north-east monsoon.

Temperature.

Temperature.—The following table shows the temperature, rainfall, and direction of the wind from observations taken at the Nagpore Observatory :—

Week ending	Maximum Temperature.	Minimum Temperature.	Mean from Average Daily Means.	Rainfall.	Wind.
January 4th	85	49	58·7	...	E.
„ 11th	87	43·5	65·9	...	N.
„ 18th	89	46	68·9	...	E.
„ 25th	87	52	72·6	...	E. & S.
February 1st	90	57	74·3	...	S.E.
„ 8th	88·5	51	79	·02	N.
„ 15th	91	60	76·9	·95	N.E.
„ 22nd	90·8	63	76·9	·05	E.
March 1st	97·5	56	78·1	...	W.
„ 8th	96	56	77·9	...	E. & W.
„ 15th	97	55	78·6	·70	E.
„ 22nd	102	63	82·6	...	E.
„ 29th	107	66	87·5	...	N. & E.
April 5th	107	72	90·0	...	W.
„ 12th	107	74	90·2	...	N.E. & S.E.
„ 19th	111	74	94	...	W.
„ 26th	108·5	68	89·3	...	N. & N.W.
May 3rd	110·5	75	93·3	...	N. W.
„ 10th	106	73	90·5	...	W. & S.W.
„ 17th	105	70	90·3	·25	W.
„ 24th	116	76	95·3	...	W. &. N.W.
„ 31st	116	77	96·4	·33	W. & N.W.
June 7th	108	72	93	·95	W.
„ 14th	109	72	89·3	2·95	W.
„ 21st	104	77	89·7	...	N.W.
„ 28th	105	79	9	·10	N.W.
July 5th	104	70	83·8	2·8	W.
„ 12th	91	74	81·5	1·53	N.W.
„ 19th	94	74	83·3	·27	W.
„ 26th	90·5	72·5	80·8	1·80	W.
August 2nd	92	74	82·2	·79	W. & S.W.
„ 9th	87	72	79·1	2·57	N.W.
„ 16th	93	71	82·1	·22	W.
„ 23rd	96	72·5	83·8	·62	N.W.
„ 30th	94	71	81·7	4·25	N.
September 6th	88	73	79·0	5·58	W.
„ 13th	87	69	77·8	1·68	W.
„ 20th	93·5	70	80·4	·57	N. & W.
„ 27th	95	72	83·7	1·24	N.E. & N.W.
October 4th	93	68	80·9	·02	N.
„ 11th	92	59	75·6	...	N.E.
„ 18th	93	64	78·9	...	N.E.
„ 25th	92	59	76·2	...	N.E. & E.
November 1st	91	55	74·1	...	N.E.
„ 8th	92·5	54	75·4	...	N.E.
„ 15th	89	66	76·9	...	N.E.
„ 22nd	90	54	75	...	E.
„ 29th	86	53	69·8	...	E. & N E.
December 6th	84·5	53	68·7	...	E.
„ 13th	88·5	55	72·6	·02	E.
„ 20th	84	52	66·8	...	E.
„ 29th	85	50	67·5	...	E.

From these observations and those taken during 1872 the diagram attached has been constructed, which, at a glance, enables us to contrast the climatic elements of the past and previous year.

Temperature of seasons.

Temperature of seasons.—The mean temperature, together with the average highest and lowest weekly observations for each season of the year, is shown in the following table :—

1873.	Mean Temperature.	Mean of 52 Weekly Maximum Observations.	Mean of 52 Weekly Minimum Observations.
Cold season	73·5	89·9	55·4
Hot ,, ...	90·9	108·7	71·7
Rainy ,, ...	82·6	94·2	72·9

Mean temperature.—The mean temperature for the whole year deduced from the daily means is 82·3° F., which is precisely the same as that for 1872. Mean temperature.

Maximum temperature.—The mean of all the highest weekly observations is 97·6, which is 1·9° F. higher than 1872. Maximum temperature.

During the hot season the highest temperature was registered during the weeks ending 24th and 31st May, when the thermometer reached 116° F. in the shade.

During the week ending June 8th, 1872, it reached 117° F.

My own shaded thermometer in Kamptee was never observed over 113° F.

Minimum temperature.—The mean of all the weekly lowest observations is 66·6° F., which is 3·9 lower than last year. Minimum temperature.

The lowest temperature was recorded during the week ending January 11th, when the minimum reached was 43·5° F.

This is 4° F. lower than any observations in 1872.

Temperature as felt by individuals.—It is often said with truth that thermometer observations do not always convey a fair estimate of climate as individuals feel it. A few general remarks, therefore, on this subject may not be out of place. Temperature as felt by individuals.

The cold season at Kamptee during December and January is often disagreeably chilly, and it is necessary, for comfort sake, to wear the same clothes one would wear in winter at home. The inside of the houses during the day is six degrees colder than the shade of outside verandahs, and people complain of the draughty cold air, and outside doors are often closed to keep out cold winds. Coughs and severe catarrhs are very prevalent at this time, and are very troublesome to shake off. Ague prevails more during October.

From the 1st of April punkahs are necessary at night, and it would be difficult to obtain a good night's rest without them till the end of September.

After the 15th of April thermantidotes and tatties are necessary till the 15th of June or commencement of the rains, and by their means in a good house the thermometer may be kept at about 90° F. during the hottest time of the day.

With the daily minimum in shade during May never falling below 80° and often at 90° F. in the morning, it may be imagined that some amount of lassitude and fatigue is felt by all, and especially by those whose duties compel them to take a certain amount of active exercise.

During the rains the temperature may be described as often "muggy" from the frequent absence of wind, and although the temperature is reduced by heavy falls of rain, still this season is thought by some people to be attended with a sense of more discomfort than the hot season. I cannot say my own experience confirms this opinion.

A reference to the diagram shows that during the last week in April and the first three weeks in May the temperature was much lower than the previous year. The high temperature was, however, prolonged into June by the south-west monsoon being so late in setting in.

Rainfall.—A heavy fall of rain took place on the 3rd of June, which was thought by many to be the south-west monsoon. This did not, however, really commence till the 16th of the same month. The monsoon even then could not be considered to have fairly set in till July. Rainfall.

The total rainfall registered at the Nagpore Observatory for the year 1873 amounted to 30·26 inches, of which 27·96 inches fell after the 1st June. This is 14·61 inches less than in 1872, and about ten inches below the average.

At the Garrison Hospital, Kamptee, 29·97 inches were registered during the year.

Although the rainfall was so deficient at Kamptee, it was greatly in excess at some places in the Central Provinces; and when the average rainfall for the whole district is compared with that for previous years, it is found to be only four inches short.

Wind.—The prevailing winds during the cold season are from the north-east and east. Wind.

In April they veer to north and north-west, and in June settle down to the west. During the rainy season the prevailing winds are west and north-west.

They rarely blow for any length of time from due south-west. In October they again become north-easterly.

During May storms of wind are prevalent, working up from the north-west and veering round the station to the north and disappearing in the south-east with thunder, lightning, and heavy clouds of dust. The electrical phenomena at these times, as exhibited in the vivid forked flashes of lightning extending from one horizon to the other, are very beautiful.

Influence of climate on particular constitutions.

Influence of climate on particular constitutions.—To illustrate the influence of the climate of Kamptee on particular constitutions as compared with other stations, I have compiled some statistics from documents placed at my disposal by the Deputy Surgeon-General, Kamptee.

Europeans.

Europeans.—The first relate to the health of the European troops stationed here for the past eight years, *viz.*, 1864 to 1871, and my figures are taken from a report by the Inspector-General, British Troops, published in Proceedings, Madras Government, Military Department, No. 3725, dated November 23rd, 1873.

European sick and death rate.

European sick and death rate.—The following table shows the average sickness and mortality per 1,000 of strength amongst the European troops for eight years contrasted with the Presidency rate :—

From 1864 to 1871.	Admissions, excluding Violence.	Daily Sick.	Death-rate.			Invaliding.
			Excluding Cholera and Violence.	In Hospital.	All Causes.	
Madras Presidency Rate	1293·6	62·9	16·8	18·6	21·1	56·6
Artillery and Infantry	1616·7	57·9	13·9	15·7	17·7	65·9

The diseases which have chiefly made up the admission and death rate are shown in the following table :—

1864 to 1871.	Eruptive Fevers.	Ague or Intermittent Fever.	Remittent Fever.	Typhoid.	Other Fevers.	Cholera.	Rheumatism.	Syphilis.	Gonorrhœa.	Phthisis Pulmonalis.	Apoplexy and Sun-stroke.	Diseases of Circulatory.	Diseases of Respiratory.	Diarrhœa.	Dysentery.	Hepatitis.	All Causes, excluding Injuries.
Presidency Rate ...	1·0	158	14·2	2·1	69·6	4·5	51·3	115·7	67	11·4	3·8	17·6	49·7	87·2	85	73·9	481·6
Artillery and Infantry, Kamptee	2·9	507·7	17·5	·4	37·4	5·3	57·1	157·5	94·7	11·9	4·5	12·2	53·3	63·7	38·4	60·4	493·0

The death-rate for the above period has been made up of small-pox (4), remittent fever (8), intermittent (5), phthisis pulmonalis (7), apoplexy or sun-stroke (26), and hepatitis (21).

Native troops.

Native troops.—As regards the influence of climate on the native troops the following table, compiled from the returns of the Sanitary Commissioner for Madras, gives the following results for six years ending 1871 :—

Sickness and mortality of past years.

1866 to 1871.	Rate per 1,000.			
	Admissions.	Daily Sick.	Deaths.	Deaths, including those out of Hospital.
Madras Presidency Rate	716·3	28·9	11·2	14·1
Native Troops, Kamptee	917·4	30·8	9·4	...

Special diseases of past years.

Special diseases of past years.—The following table gives the admissions and deaths per 1,000 from some of the principal diseases contrasted with the Madras Presidency :—

1866 to 1871.	Fevers.		Dysentery.		Diarrhœa.		Hepatitis.		Cholera.	
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
Madras Presidency...	309·2	1·61	21·28	·48	24·8	·7	1·59	·1	2·5	1·13
Native Troops, Kamptee	507·2	2·0	17·5	·1	26·2	·5	2·8	...	5·9	2·0

Cholera and small-pox.

Cholera and small-pox.—Cholera was entirely absent during 1867, 1870, 1871, and 1872. Small-pox appears in the returns of 1867, 1868, 1870, and 1871 but in no very large proportion. Severe outbreaks of the former disease have been rare of late years, chiefly,

I think, to be attributable to the discontinuance of the annual festival at Mahadao, a sacred shrine near Kamptee.

General conclusions regarding statistics, &c.

General conclusions regarding statistics of past years.—An examination of the above returns shows a high admission-rate for both Europeans and Natives, an average daily sick list, and a very low death-rate.

Chief causes of sickness.

Chief causes of sickness.—The admissions are chiefly made up of mild cases of ague, the same individual coming over and over again to hospital.

Amongst the Europeans venereal disease swells the admission-rate greatly, as this and ague are described by Dr. Currie as *par excellence* the diseases of Kamptee.

Small death-rate.

Small death-rate.—The death-rate is three and two per mille lower amongst Europeans and Natives respectively than the Presidency rate, although the invaliding rate is high amongst the former.

Remarkable freedom of residents from congestive disease.

Remarkable freedom of residents from congestive disease.—The most remarkable feature about the climate of Kamptee is the immunity which the Europeans enjoy from the more generally fatal diseases of the tropics, such as hepatitis and dysentery. As will be observed from the above tables the admissions from dysentery and diarrhœa are 47 and 24 per mille respectively, and hepatitis 13, below the Presidency rate. It is difficult to account for this difference by any meteorological causes. As the climate in many respects resembles that of Secunderabad where these diseases are so very frequent and fatal, causes must be looked for elsewhere in its geological and topographical features.

Climate trying to weakly constitutions.

Climate trying to weakly constitutions.—The extreme daily range of temperature in the cold season is doubtless trying to those persons who are liable to congestive diseases, and requires care and attention in the use of woollen clothing.

Natives who have been weakened by ague are liable to suffer from congestion of the lungs, and the climate is trying to those who suffer from any debilitating cause.

Facilities for removal.

Facilities for removal.—The facilities which exist for prompt removal to the sea coast has doubtless a tendency to remove from the medical returns many fatal cases of congestive diseases, and Kamptee can no longer be looked upon as the grave-yard it was some years ago.

Good sanitary condition of station.

Good sanitary condition of station.—The sanitary condition of the station has been immensely improved, and it would be difficult to find one where more care is taken to remove any cause which may affect the health of the residents.

Malarious influences exaggerated.

Malarious influences exaggerated.—There still no doubt exist malarious influences in and around the place; but these have exhibited themselves in a very slight degree during the year under review so far as my experience goes.

Many of the attacks of fever which have gained admittance into hospital, and which have swelled the returns, have been caused by exposure to the sun's rays, which even in the cold season are peculiarly powerful, producing biliary derangements and similating fever of a malarious origin.

Personal experience of climate favorable.

Personal experience of climate favorable.—Certainly the year's experience I have had of Kamptee does not lead me to write of it as being the highly malarious station it has been so often described to be, nor do I consider the climate such a very trying one to the European constitutions where ordinary prudence is exercised in dress, and where common sense guides the daily habits of life.

A fatal climate for intemperate habits.

A fatal climate for intemperate habits.—Where these are neglected climatic agencies exist which will speedily assist, both directly and indirectly, in causing fatal disease. Moreso here, perhaps, than at most stations further south.

The above remarks have been suggested, not only by the experience of my own regiment, but that derived from a year's medical charge of the brigade staff and a large number of details.

Diseases of the civil population.

Diseases of the civil population.—The diseases of the civil population in Kamptee and the district are chiefly small-pox, fever, and occasional outbreaks of cholera.

The first-named was very prevalent during the hot season.

Geological formation.

Geological formation.—The station of Kamptee, situated in north latitude 21·25 and east longitude 27·40, stands upon the right bank of the Kahan river, just below its junction, with the Pench and Koolar. The Kahan flows into the Weyen Gunga, and thus into the Bay of Bengal by the Godavery.

The station is built on black cotton soil resting upon kunkur, and beneath this sandstone which has supplied the building material for the bridge just completed, and which crosses the river at the east end of the station. The traffic north and east with Jubbulpore and Raipore is thus much facilitated.

Physical geography and medical topography of surrounding country.

Physical geography and medical topography of surrounding country.—The plain upon which the station is built is 890 feet above the sea level.

The cantonment is most pleasantly wooded, not to say picturesque, but the immediate surrounding country is bare and ugly in the extreme.

About 60 miles to the north of Kamptee run the high lands of Central India, and to the southward extend the plains of the Deccan.

The former is made up of the Satpura and Meykul ranges, with the Vindhya mountains still further north.

On the Satpura range are situated the pleasant little civil stations of Betal, Chindwara, and Seoni, also the new sanitarium of Putchmurrie.

Sanitariums of Kamptee, Putchmurrie.

Sanitariums of Kamptee, Putchmurrie.—The sanitarium has been occupied for a year by the weakly men of the European regiment stationed here, and I believe the climate has been found a most enjoyable one, and those sent there have derived great benefit from the change.

The top of the plateau is reached in two days from Nagpore; the nearest railway station being Bankberi on the G. I. P. lines, about 30 miles distant from the top of the hill plateau.

Obstacles to its use by the residents of Kamptee.

Obstacles to its use by the residents of Kamptee.—At present the absence of houses prevents the residents of Kamptee taking advantage of the benefits offered by the proximity of such a delightful hill climate, but it is to be hoped this obstacle will not long continue, as building ground has already been allotted by Government for the purpose of inducing persons to build.

Matteran.

Matteran.—At present the only accessible hill station is that of Matteran on the west coast, but its climate has not been very favorably dwelt upon by those who visited it last hot season. Its elevation is not sufficiently great to free it from the moist, relaxing climatic features of the west coast.

Chickulda.

Chickulda.—The Chickulda hills near Ellichapoor are now easily accessible by rail, but the same disadvantages mentioned above also exist there.

Natural history of the surrounding district.

Natural history of the surrounding district.—The country surrounding this station, consisting as it does of extensive plains and valleys diversified by mountain ranges, may be expected to furnish a long and varied list of vegetable and animal productions.

Captain Forsyth, in his work on Central India, gives the following list of useful trees and vegetable products observed by him during his employment as Conservator of Forests :—

* *List of useful Timber Trees and other Vegetable Products observed in the Forests of the Central Provinces.*

Botanical list.

Botanical Name.	English Name.	Botanical Name.	English Name.
Acacia Arabica	Gum Arabic tree.	Elœodendron paniculatum ...	.....
„ catechu	Catechu tree.	Emblica officinalis	.....
„ leucophlæa	.....	Epicarpus orientalis ...	.....
„ paniculata	.....	Eugenia jambolana	.....
„ procera	.....	Feronia elephantum... ...	Elephant apple.
„ speciosa	.....	Ficus glomerata	.....
Ægle marmelos	Bael tree.	„ Indica	Barjan.
Andropogon Martini ...	Rusa grass.	„ religiosa	Peepul.
„ muricatum ...	.....	Gmelina arborea	.....
Bambusa arundinacea ...	Bamboo.	Grewia elastica	Lancewood.
Bassia longifolia	Mahwap tree.	Hardwickia binata	.....
Bauhinia racemosa	.....	Inga xylocarpa	.....
„ scandens ... }	Grant creeper.	Lagerstrœmia lanceolata ...	.....
„ Vahlii ... }		Mangifera Indica	Mango.
Bignonia chelonoides ...	.....	Melia azedarachta	Meem.
Bombax Malabaricum ...	Red cotton tree.	Nauclea cadamba	.....
Boswellia thurifera	Olibanum tree.	„ cordifolia	.....
Buchanania latifolia ...	.....	„ parviflora	.....
Butea frondosa	Kino tree.	Odina Wodier	.....
Careya arborea	.....	Phœnix farinifera	.....
Carissa carandas	Karounda.	Pterocarpus marsupium ...	Wild date.
Chloroxylon swietenia ...	Satinwood.	Schleichera trijuga ...	Kino tree.
Cochlospermum gossypium.	.....	Schrebera swietenioides ...	.....
Conocarpus latifolius ...	.....	Shorea robusta	Sal.
„ myrtifolius ...	.....	Soymida febrifuga	Wormwood.
Cordia angustifolia	.....	Strychnos Nux vomica ...	.....
Cordia macleodii	.....	„ potatorum ...	.....
Croton tiglium	.....	Tamarindus Indica	Tamarind.
Curcuma angustifolia ...	Arrowroot.	Tectona grandis	Teak.
Cynodon dactylon	Doot grass.	Terminalia Arjunia	.....
Dalbergia latifolia	Blackwood.	„ bellerica... ...	.....
„ Oojeineusis ...	.....	„ chebula ..	.....
Diospyros melanoxylon ...	Ebony tree.	Do tomentox (coream) ...	Black eyne.
„ montana	.....	Zizyphus jujuba	.....

* Extracted from the Highlands of Central India by Captain J. Forsyth, B.S.C.

Zoological list.

Zoological list.—The same gentleman, in various parts of his book, mentions having met with all variety of the following animals, birds, &c. :—

Snipe, common teal, whistling teal, blue-winged teal, red-headed pochard, the widgeon, the godwall, mallard, grey goose, black-backed goose, storks, herons cranes,

demoiselle crane, sarns, braminy ducks, grey quail, grey partridge, painted partridge, vultures, eagles, pea fowls, crows, jungle fowls, barbet, spur fowls, black antelope, gazelle (chickara), neilgae, tiger, panther, hunting leopard, wolf, jackal, sambur stag, squirrel, bear, hares, bison, wild buffaloe, jungle sheep, fox, spotted deer, and wild dog.

Gardening.

Gardening.—Gardening in Kamptee, although attended with many disappointments, forms an amusement for most of the residents.

Nearly all the common English vegetables grow well here, and most dinner tables are plentifully supplied during the cold season with cabbages, lettusces, artichockes, beans, peas, knol-kol, carrots, turnips, onions, beet-root, tomatoes, celery, cauliflower, &c.

All the year round, according to season, there is a good supply of fruit, which goes far to alleviate the extremes of climate.

The following is a list of the principal fruit sold in the bazaar:—Oranges, mangoes, custard apples, plantains, jackfruit, peaches, tamarinds, guavas, pomegranate, popoy, limes, figs, Neilgherry goosberry, bearfruit, all of which grow in my own garden.

Melons are cultivated in the hot weather in the bed of the Kahan, and I have found them very wholesome as an article of diet.

Water-supply.

Water-supply.—The water-supply of the station generally is good from wells and the Kahan river. The former are mostly from 40 to 50 feet deep. The quality of the well water which is chiefly used is hard from the presence of large quantities of silicate of magnesia; it also contains large quantities of carbonate of lime.

The river water does not contain so much of the above salts, but very much more organic matter. The latter is said to be chiefly derived from its pollution by Kolar river upon the banks of which the Commissariat cattle-yard is placed.

According to an analysis made by Surgeon Nicholson, R.A., the organic impurities in the Kahan amount to 1·2, whereas in the wells it is only ·40; on the other hand in the wells the silicate and carbonate of magnesia is 9·98 and the carbonate of lime 9·2, whereas in the river it is only 3·40 and 5·20 respectively.

Plan of stations.

Plan of stations.—As before mentioned the station is built on the banks of the Kahan and follows its course for about four miles.

The Royal Artillery and European Infantry are located on the extreme west and the Native Cavalry Lines on the east, with the 35th Native Infantry and Wing of the 22nd Regiment in the centre. The station is laid out in the form of a camp facing southwards, with the city of Nagpore and the hill fort of Seetabuldee about nine miles to its front.

Lines of the 2nd Regiment Light Cavalry.

Lines of the 2nd Regiment Light Cavalry.—The lines of this regiment are laid out on undulating ground intersected by a water-course which carries off the rainfall into the Kahan river.

The country is open to the east and on the west lay the lines of the 22nd Regiment. The lines of the Officers are on the north side and extend backwards towards the banks of the river, while on the south is the cavalry exercise and brigade ground, with a bazaar between it and the men's hutting lines.

Sepoys' huts.

Sepoys' huts.—The hutting lines extend from east to west on rising ground with a gentle fall to the north, the ground sloping to the banks of the water-course above mentioned.

The huts are of regulation size, tiled and with mud walls. A broad road runs down their centre, which is intersected by streets running due north and south.

The huts are built in double rows back to back, and open into the last-mentioned streets. The men complained much of their heat during the hot season and their excessive dampness during the rains.

Farriers' lines.

Farriers' Lines.—The farriers and trumpeters are accommodated in exceptionally good quarters, being a range of temporary buildings erected for the accommodation of the families of a European regiment on service during the Indian mutiny of 1857 and 1858.

Sepoys' huts as regards their occupation.

Sepoys' huts as regards their occupation.—In the sepoy lines there are 281 huts occupied, of which number 234 are tenanted by family men, leaving 47 for the bachelors.

The total number of men, women, and children living in the Sepoy lines is 601.* Deducting from this number 47 single men, it leaves 554 souls living in the 234 huts, or an average of 2·36 per hut. Such a calculation is, however, very fallacious as to its giving an idea of the crowding or otherwise of the houses, as the numbers are so unequally distributed. Four to each would be a better average. Cases occur when the number is doubled.

For instance in hut No. 17 occupied by Private Shumshoodeen Khan, F. Troop, nine souls sleep, *viz.*, three adults and six children.

This hut is 12 feet long by 8½ feet broad and the walls 6½ feet high. This would give about 12 feet superficial area to each tenant.

The hut is typical of others, consisting of one room and an enclosed verandah, the entrance not being more than 3½ or 4 feet high.

It stands in a courtyard in the one corner of which is a latrine and in another a paved bit of ground for bathing purposes. The waste water running into the street and the urine from the latrine out at the back of the hut. The latrine was at my visit (unexpected) as clean as such arrangements permitted.

* 294 adults including sepoys of all ranks and relatives : 307 children.

Followers.

Followers.—The lines occupied by the followers are situated on sloping ground to the east of the sepoys' huts.

They have been built with great care and are arranged in regular lines, the streets running parallel to those of the sepoys. There are eight rows, one corresponding to each troop, and, with the exception of having no courtyards and being smaller, do not differ materially from those of the sepoys.

For neatness, regularity of construction, and consequent cleanliness they are infinitely superior to those of other cavalry lines either at Secunderabad or Bellary.

Their construction reflects great credit upon their designer, Colonel Dyneley of the Madras Cavalry, under whose direction they were built.

It is a matter of no small importance that special care should be taken in the construction of the followers' lines of a cavalry corps, for their inhabitants are as a rule men and women of a low caste and of extremely dirty habits, and sanitary supervision is greatly impeded if they are allowed to "squat" indiscriminately over a "maidan" in the neighbourhood of the lines.

Occupation of Followers' Lines.

Occupation of Followers' Lines.—There are 249 huts in these lines occupied by as many adults, *viz.*, horse-keepers, grass-cutters, and store servants, and 293 children, giving an average of two souls to each house.

Drainage.

Drainage.—There is no regular system of drainage for the lines beyond the ordinary shallow trenches at the sides of the streets to facilitate the escape of the rainfall.

The fluid sewage from the huts escapes from the courtyards into these and soaks into the ground.

These lines are said to be the most healthy in Kamptee, and, built as they are on elevated ground with a good slope to the south, would strike the casual observer as requiring no assistance beyond what nature has given for the complete drainage of the site.

No greater mistake could be made, for the men of this corps for many years past have never been located on a site where the services of the engineer were more required.

I write this from the experience gained during the late monsoon, which has been, as before remarked, an unusually light one. During these months the floors and walls of the men's huts were always damp and remained so for many days after the cessation of the rain.

So damp and moist were the walls of many that to account satisfactorily for the causes on such elevated ground is a problem of some interest. In company with the Commanding Officer I have visited the interior of the huts, and we have failed to discover a remedy for it.

There is no higher ground in the neighbourhood, and the walls of the huts are not saturated directly from the rain : the moisture rises from below upwards.

Subsoil drainage necessary.

Subsoil drainage necessary.—The geological character of the soil would appear to favor the retention of the moisture for some time, and the walls of the huts, being of the same material, absorb it like a sponge. I believe that the real remedy for this state of things is a thorough system of subsoil drainage, and until this is done our sepoy regiments will always show a high admission-rate from fever while stationed here.

I have inquired into this matter, and I am informed that this state of things is peculiar to most native houses in Kamptee, and the inhabitants mostly sleep on charpoys, while our men have been accustomed to sleep on earthen chabootras or on the ground.

The capacity of the huts is too limited to admit of all the members of the family being accommodated with charpoys, hence evils in the shape of fever and rheumatism must be expected to develop themselves.

Attempt at surface drainage.

Attempt at surface drainage.—I should mention that an attempt was made by the Officer Commanding the 3rd Light Cavalry to lay down some surface drains. One made of stone shaped thus ∪, about 67½ yards long, was constructed between the back walls of a double row of huts to receive the drains from the houses.

The expense of this was 30 rupees, and at this rate would have cost to lay them down throughout the lines Rupees 600.

They would require to have been all connected and been flushed daily with water to be of real service.

Conservancy and sewage arrangements.

Conservancy and sewage arrangements.—The conservancy of the lines is well looked after, and they at all times present a clean, tidy appearance. The conservancy establishment consists of eight toties and a cart. No other arrangements are provided for the lines and farriers' quarters. The sweepings and rubbish are collected into dust-bins conveniently situated and carried to a distance by the cart, and the excreta from the private latrines is carried by the toties in baskets to pits half a mile to the south of the lines and there buried.

This work of the toties is superintended by a sepoy from the Quartermaster's Department.

The followers' lines are swept clean by themselves and those of the dhoby lines by private arrangements. The public latrines are kept clean by municipal arrangements. Three district toties are employed for this purpose.

Conservancy of public latrines.

Conservancy of public latrines.—There are two public latrines in the neighbourhood of the lines, consisting of oblong walled enclosures divided in the centre for males and females, and these again subdivided by screen walls for the sake of privacy; as just stated their

conservancy is under municipal authority, three toties being supplied between the two latrines.

They are generally clean, but during the rains are at times very offensive from exposure to the weather. They should be roofed in the wall, being left open at the top for free ventilation.

There are two public latrines for the Farriers' quarters, and one for the Staff Serjeants' quarters; these are kept clean by regimental arrangements.

The conservancy of the officers' lines is looked after by the municipal authorities; each compound has a built latrine for the use of the servants, and is cleaned by a toty and cart daily at 6 A.M.

General conservancy of neighbourhood.

General conservancy of neighbourhood.—The general conservancy of the neighbourhood is on the whole good, although complaints often arise from the early morning squatting of the followers at the back of their lines, these people preferring the open maidan to the restraint of a public latrine.

The conservancy of a village inhabited by weavers, called the "1st Cavalry Bazaar," about 500 yards to the south of the lines, has at times given cause for complaints. These have been referred to the municipal authorities.

Guard-rooms.

Guard-rooms.—During the year the following guards have been kept up in the regiment:—the standard guard, mess, magazine, gram-shed, and hospital; the latter has been discontinued since the 16th December on account of the weakened strength of the corps.

Standard guard.

Standard guard.—The standard guard consists of a strength of 15 men, of whom four are on duty at one time. It is accommodated in a room 26′ × 17′ × 13′, giving a superficial area of 442 square feet, giving space of 44 square feet per man. It is amply ventilated by three windows (4′ × 3′) with 123 square feet outlet and three archways opening into a six-feet closed verandah 34 feet long, in which are two doors and the same number of windows.

There are also two large openings in the gable end walls fitted in with wire gauze. The ventilation of this room is excessive during the cold season and sufficient during the hot weather and rains.

Magazine guard.

Magazine guard.—The magazine guard consisting of four men, of whom one is on duty, is located in a one-roomed building (16′ × 10′ × 9′) having a superficial area of 160 square feet, giving 53 square feet per man. It is amply ventilated by three windows and a door; the former 2′ × 3′ and the latter 6′ × 5′, these outlets being equal to a superficies of 36 square feet.

Mess and gram-shed guard.

Mess and gram-shed guard.—The gram-shed guard consists of six men, and the mess guard three. Both guards are located in verandahs, and have, therefore, lots of fresh air. During the cold season I considered the men were too much exposed at night, and recommended the verandah should be enclosed with bamboo tatties to protect them from the cold wind.

Hospital guard.

Hospital guard.—The hospital guard consisting of four men have occupied one of the enclosed verandahs of the hospital.

Prison-room.

Prison-room.—The prison room at the standard guard is 17′ × 8′, having a superficial area of 136 square feet. It is well ventilated by a door and window and a large window in the upper part of the wall.

Solitary cells.

Solitary cells.—There are two solitary cells of the usual pattern situated between the hospital and Farriers' quarters on open ground and well exposed to the wind.

Staff Serjeants' quarters.

Staff Serjeants' quarters.—The Staff Serjeants' quarters with their out-building are in good order; as there are no European Serjeants with the regiment, they are used as stores for line articles, and also as a school-room for the Farriers' and Trumpeters' children. Each consists of two rooms 17′ × 15′ and 15′ × 15′ respectively.

Other public buildings.

Other public buildings.—There are other public buildings in the lines, such as a gram-shed, sick stables, sling shed, places of arms, forage yard, armourer's and chuckler's work-shop, which call for no remarks from the Sanitary Officer.

School-rooms.

School-rooms.—There are three schools in the regiment—an English, Hindustanee, and Mahratta.

English School.

English School.—The English school is held at present in one of the vacant Staff Serjeants' quarters.

The salary of the master is provided for by a private subscription amongst the officers.

Twenty-four children, aged from 5 to 14 years, attend daily from 9 to 12 A.M. and from 2 to 4 P.M.

The room is well ventilated and suitable for its purpose; it is, however, contemplated moving school to another building.

Sepoys' children also attend this school for the purpose of learning English.

Hindustanee and Mahratta School.

Hindustanee and Mahratta School.—The Hindustanee and Mahratta Schools are held in a building in the lines. It is nothing more than an ordinary mud-built, but divided in two rooms one 18′ × 13′ and the other 13′ × 12′.

The Hindustanee pupils occupy the former.

Forty children attend daily from 7 A.M. to 10 A.M., 12 A.M. to 3 P.M., and from 4 P.M. to 5 P.M., *viz.*, 7 hours out of the 24.

The rooms are ventilated by one door and two windows.

The Mahratta School numbers 12 boys, whose hours of attendance are from 6 A.M. to 10 A.M. and 12 A.M. to 5 P.M. The children all look healthy, and appear to take more interest in their studies than an English class of the same age would do.

Garden. *Garden.*—There is an enclosed piece of ground intended for a garden, and in convenient proximity to the well which supplies the water trough. It has not been put under cultivation this year, but next season it is contemplated doing so.

Horse lines. *Horse lines.*—The horse lines are always clean, and their sanitary condition unexceptionable; all refuse is carefully removed to a distance. They are well shaded with trees, thus affording great protection from the sun to officers and men when at stable duty. There are three tiled huts in these lines for the protection of the horse-keepers on duty.

Water-supply. *Water-supply.*—The water-supply is chiefly from wells and has been at all times abundant in quantity and of fair quality. The water in two of the wells has been analysed on the 25th October 1872, and the result, as given below, published in a general Report on the Potable Waters of the Madras Presidency.

All the wells in the lines (with one exception) which are used for drinking water are numbered, and have the words "drinking water" painted on a board over them; each is built in with pucka brick and lime, with ridge platform and drain, also with a wooden cover, so that no waste water can possibly flow back into the well.

The following is the analysis of a well No. 36 in the Farriers' and Trumpeters' lines:—

Description of Water.

Physical Properties of Water.	Reaction.	Hardness.			Parts per 100,000 of Water.								Apparent Effects of Ignition.	Parts per 100,000 of Water.							Gases driven off by boiling from one Litre of Water in Cl. at 0° Cent.			Abstract of Remarks by Water Analyst.	Remarks by Chemical Examiner.
		Total.	Permanent.	Removable.	Of Oxygen removed by Readily Oxidizable Matters.	Of Oxygen removed by Oxidizable Matters at 60 per cent.	NH_3 Ammonia (free and combined).	Albuminoid Ammonia.	Nitric Acid HNO_3.	Nitrous Acid HNO_2.	Total Solids.			Lime CaO.	Magnesia M_gO.	Chlorine Cl.	Sulphuric Acid H_2SO_4.	Phosphoric Acid H_3PO_4.	Sulphuretted Hydrogen H_2S.	Silica SiO_2.	Oxygen.	Nitrogen.	Carbonic Acid.		
No. 36. No color or smell; taste agreeable; clear; contains some amœba and a little vegetable débris.	Alkaline.	20·3	18·2	2·1	·01	·06	...	...	8·0	...	58·0	Loss 1-2th slight blackening.		11·2	7·63	3·1	2·9	...	...	4·0	...	...	...	Pretty good; may be used for drinking.	

Duties, parades and marches, &c. *Duties, parades and marches, &c.*—The duties of the regiment during the year have been the usual ones pertaining to a cavalry corps. The first month and-a-half was engaged on the march from Bellary to the present station, where they arrived on the 12th February.

The corps left Bellary on the 14th December 1872, and the marches averaged 11½ miles per diem. The march was performed without any unusual sickness.

In cantonment there have usually been three mounted parades a week, lasting about a hour and-a-half.

These, with the usual stable and guard duties, have not been too much for the men. During the severe epidemic of dengue fever hereafter to be described, on my recommendation the regiment was excused mounted duties from 10th August to 19th September 1873.

Proportion of nights in bed. *Proportion of nights in bed.*—The proportion of nights in bed have been 4½. At times the average has been 3¼.

This has arisen from the number of sick during the prevalence of dengue fever. It is now 3¼, caused by the reduced strength of the corps.

Ten men were invalided on the 15th December and one in February. To reduce this excessive amount of duty the hospital guard has been taken off, and every available man brought on duty.

Clothing. *Clothing.*—The clothing of the men has consisted generally of the cloth tunic and trousers worn all the year round on mounted duties. At stables and on guard duties during the hot weather an undress, consisting of a white cotton jacket and colored trousers of the same material, is worn.

During the cold weather the men are permitted to wear a thick quilted cotton coat on all dismounted duties. During the hot weather I consider the cloth tunic a most unsuitable dress for this climate with the thermometer never below 80° in the shade and over 113° in the day. The men cannot afford, however, to pay for the keeping up of a sufficient number of white coats, so the evil continues.

At my recommendation the officers are permitted to wear white jackets with cloth overalls at parades during the hot season. For a European to be clothed in a tight buttoned-up cloth jacket during the hot season would be to invite an attack of heat apoplexy.

It can be imagined, however, that serious objections of a military character exist to officers being in white and men in blue.

It is to be hoped that some steps may be taken in the matter before the next hot season to increase the comfort of the men by dressing them in the same costume as the officers.

Vaccination.—The regular vaccination of the regiment has been interfered with by its march and by the outbreak of dengue fever. No time has been lost, however, since the commencement of the cold weather of making up for lost time. Sunday morning has been the appointed day of the week for the performance of the operation. Vaccination.

A list of the children unprotected is kept at the hospital, and the children are brought up by their parents on receiving notice to this effect. No objection or difficulty has been met with on the part of the parents except in a few instances, and these have generally been overcome on the benefits of the operation being explained.

There are now not more than half a dozen children in the lines unprotected.

Bazaar supplies.—The bazaar supplies have been plentiful and reasonable in price; generally speaking food for the sepoys is to be obtained cheaper than at Bellary, the last station. Bazaar supplies.

There is always a plentiful supply of vegetables. Wood for cooking is cheaper. The mutton is of very fair quality, although small. Beef at times very good, especially during the cold season.

The following is a list of the prices of articles generally essential to a sepoy's daily domestic economy:—

Rice, 15 seers per rupee.	Small fowls, 6 per rupee.
Vegetables, 4 pies per seer.	Ghee, 1½ seers ,,
Large fowls, 3 per rupee.	Milk, 8 ,, ,,
Dholl, 12 seers ,,	Mutton, 6 seers ,,
Firewood, 4 maunds per rupee.	Wheat, 15 ,, ,,

The dieting of sepoys is not a question which comes under the control of medical officers. It has no doubt been sufficiently varied, but in many instances I am afraid the pay of the sepoy is insufficient to feed himself and his numerous relatives properly. Most of the men of this corps are in debt, many deeply so. The day will come when the question will be raised whether Government is being treated fairly by their sepoys, who, instead of thoroughly nourishing themselves out of their pay, starve themselves to feed an army of impoverished relatives. My opinion is that the men themselves would in many instances be thankful at the introduction of some regulation restricting the number and class of residents in the lines.

Intemperance and crime.—There has been very little crime in the regiment as will be observed from the returns, but there cannot be a doubt that opium-eating and smoking is carried on to a great extent amongst many of the men. Intemperance and crime.

The results of this habit have not, except in one or two cases, been brought under my notice professionally, but those who indulge freely in the habit are well known to their officers.

Hospital.—The hospital is a large brick-built building at the south-east corner of the lines, from which it stands at a convenient distance on well-elevated ground quite free from anything of an objectionable nature. A more airy, salubrious spot is not to be found in the station. Hospital.

The building is 181 feet long by 55½ feet broad, and originally consisted of one long ward 145 feet long and 20 feet broad, surrounded by an enclosed verandah 122 feet long and 9 feet broad.

This ward has, at my recommendation, been divided during the year by a partition wall in the centre, thus giving two capacious rooms, each with a superficial area of 1,423 square feet and capable of containing 14 patients each, at the rate of 90 square feet per man.

The ventilation of the wards is entirely by the doors, of which there are five in each ward, 7½ feet high and 4½ feet broad, opening into the enclosed verandah on each side and a door at each end.

In the verandah there are 11 doors 7½ feet high and 4½ feet broad.

The ventilation is at all times thoroughly good, there being a free perflation of air through the building.

Care has been also taken to prevent any overcrowding.

At each of the four corners of the building the verandah is enclosed, giving as many rooms, each 12 feet long by 12 feet broad; one of these is used as an office, the others as a surgery, bath-room, and spare ward for special cases for each of which purposes they are well adapted.

Out-buildings.—The out-buildings consist of a latrine, a cook-house, and store-room; the latter has sometimes been used during the year for contagious cases amongst the camp followers, such as measles and varicella. Out-buildings.

The latrine has been worked on Dr. Hathaway's system with the free use of coal-tar. Its condition has always been satisfactory.

Hospital bedding and clothing.—The bedding and clothing is complete according to the regulated allowance, and is all in good order. English blankets are issued in this station in lieu of "blankets, country, lined with chintz," the latter being useless in such a climate as this, and, as opportunity offers, are exchanged for the former. The men of this corps are allowed their cloaks in hospital, otherwise the number of blankets allowed by regulation, *viz.*, six half-yearly, would be at times insufficient. Hospital bedding and clothing.

Section 2.

Medical and Statistical.

Strength of the regiment. *Strength of the regiment.*—The average strength of the 2nd Madras Light Cavalry for 1873, as calculated from the number of men present with the corps on the first day of each month during the past year, as shown in table A, page 13, Annual Sanitary Report, is 11·1 European Commissioned and Non-commissioned Officers, 9·9 Native Commissioned Officers, and 238·7 Non-commissioned and Privates.

The average total of all native ranks present at head quarters during the year has been 248·6, and these figures have been used in calculating the rates of sickness amongst all native ranks.

Detachments. *Detachments.*—This regiment has continued to furnish a detachment at Madras (Commander-in-Chief's escort) of 23 men and 2 men at Bangalore. These are not included in this return.

Sickness amongst Non-commissioned Officers and Privates. *Sickness amongst Non-commissioned Officers and Privates.*—Out of the Non-commissioned Officers and Privates present at head-quarters there have been a total of 340 admissions into hospital. This number, together with five cases which remained in hospital on the 1st January 1873, makes a total treated during the year of 345 cases.

Average daily sick. *Average daily sick.*—The daily average sick in hospital for the year has been 11·11.

Deaths. *Deaths.*—There have been two deaths in hospital and two out of hospital in men sent on sick leave.

Invaliding. *Invaliding.*—Eleven men have been invalided during the year.

Sick leave. *Sick leave.*—Seven men have been sent on sick leave either to the coast or their native villages during the year; their cases are alluded to in another part of this report. A return showing the number sent on sick leave during the past four years has been attached to this report in accordance with a Circular, No. 6394, dated 24th October 1873, from the Surgeon-General's Office, Indian Medical Department.

Average per cent. of sickness. *Average per cent. of sickness.*—The rate of admissions to average strength is 140; the daily average sick 4·4; the deaths in hospital ·08, and the invaliding 4.

Native Officers. *Native Officers.*—There have been 10 admissions on the sick report amongst the Native Officers, but no deaths. All the cases in this class, except one from catarrh, were from dengue fever.

The following table shows the sickness of the past year contrasted with previous periods. This table includes all native ranks:—

Years.	Stations.	Strength.	Admissions.	Daily Sick.	Deaths in Hospital.	Invaliding.	Percentage to Strength.			
							Admissions.	Daily Sick.	Deaths.	Invaliding.
1860	Jaulnah	358	41	2·0	...	24	11	5·0	...	6·7
1861	Secunderabad	352	101	4·75	2	2	28	1·3	5·0	·5
1862	Do.	373	158	10·0	3	16	42	2·6	8·0	·42
1863	Do.	378	176	8·0	...	48	46	2·1	...	12·7
1864	Do.	350	228	9·0	3	4	65	2·5	·85	1·1
1865	Do.	359	178	11·0	6	22	49	3·06	1·6	6·1
1866	Do.	319	148	7·0	4	13	46	2·2	1·22	4·0
1867	Arcot	335	166	7·0	‡14	2	47	2·0	4·1	·5
1868	Bellary	315	130	6·1	3	...	41	1·9	·9	...
1869	Do.	*296	116	4·1	2	8	39	1·4	·0	·2
1870	Do.	†284	91	3·8	2	4	32	1·3	·7	1·4
1871	Do.	272·6	119	4·85	2	4	43	1·7	·07	·1
1872	Do.	260·9	193	7·25	3	18	73	2·7	·1	6·7
	Average of 13 years ...	327·1	141·9	6·45	3·3	12·6	41·6	2·3	1·56	2·83
1873	Kamptee	248·6	350	11·1	2	11	140	4·4	·08	·4

Strength of the regiment. *Strength of the regiment.*—From an examination of the third column of the above table it will be observed that a gradual decrease has been taking place in the average strength of this regiment during the past few years owing to the cessation of recruiting for the native cavalry branch of the service in this Presidency.

Since 1868 the strength of this corps has decreased by upwards of 67 men, and the regiment, on the 31st December 1873, was 100 below its authorized strength.

* This regiment furnished the Commander-in-Chief from this date.
† This table includes Native Commissioned Officers with other native ranks.
‡ Cholera prevailed this year.

Recruit and Pension Boys.—In July 1870 the last available recruit boy was transferred to the ranks, and this source of supply has quite ceased. Recruit and Pension Boys.

All remaining pension boys are discharged as they reach the age of 14 in accordance with a circular to this effect from the Adjutant-General's Office, No. 851, dated 21st February 1866.

Regimental duties heavy from weakened strength.—It has been elsewhere observed that there is sometimes a difficulty in making up the ordinary regimental guards on account of the weakened strength of the corps. Regimental duties heavy from weakened strength.

Age and length of service of the men.—In my annual report for 1870 on this corps I remarked upon the age and length of service of the men as being a cause of inefficiency should the regiment be called upon for active service. I there pointed out that nearly half the men were 40 years of age and upwards and over twenty years' service. Age and length of service of the men.

An examination of tables 3 and 4 of War Office Form No. 197-B for 1873 now shows that out of a strength of 276 men on the 31st of March last there were 156 men above 20 years' service, or 56 per cent.

Of the above number (276) 134 were 40 years of age and upwards, or nearly half the corps are men past the prime of life, and many of them very feeble.

It may be safely stated that the time has arrived when the physical inefficiency of many of the men for active field service must show itself should they be suddenly called upon to perform other than garrison work.

The work of cavalry in the field involves laborious and arduous duties, and it is of essential importance that the men should be young and active and prepared to ride twenty miles a day at least for weeks together.

Sickness contrasted with past years.—The past year has been a sickly year, and the number of admissions into hospital very high as contrasted with previous periods. The total admissions from men of all native ranks are 157 more than last year, and 209 more than the average of the past 13 years. Sickness contrasted with past years.

The daily sick has been double the average.

Mortality has not increased.—The mortality has not increased with this large proportion of sickness. It is below the average. Mortality has not increased.

Invaliding contrasted.—The rate of invaliding, as might be expected, has increased of late years, although not to be compared with that prevailing in former years, as will be seen in the above table. From 1867 to 1871 the invaliding was very small. Subsequent years may be expected to show a very large number. Invaliding contrasted.

Cause of increase of sickness.—The cause of the large increase in the number of admissions is due to an epidemic outbreak of dengue fever, which is again to be referred to. The admissions from this cause were more than half the total admissions. Cause of increase of sickness.

Season of greatest sickness.—The largest number of admissions (127) took place during the month of August. Season of greatest sickness.

The lowest number (7) were admitted in January.

Diseases which have made up the admissions.—The diseases which have chiefly made up the admissions have been dengue fever (188), ague (72), diseases of the eye (11), rheumatism (6), respiratory disease (4), febricula (4), dysentery (2), diarrhœa (1), phthisis pulmonalis (1), venereal disease (1), abscess (2), wounds and accidents (12), and all other causes (36). Diseases which have made up the admissions.

Deaths.—The deaths in hospital were made up of a case of stricture urethra and pneumonia. Deaths.

Epidemic.—There has been a severe epidemic outbreak of dengue fever in the regiment during the year. Epidemic.

The disease had been prevailing amongst the civil population, and commenced during the latter part of July in this corps and continued to prevail in an epidemic form till the middle of September. During the quarter ending the 30th September 174 privates and non-commissioned had been admitted, and 9 native officers took the disease.

The first admission took place on the 13th of June and the last on the 16th of October 1873.

From first to last 197 cases (including Native Officers) occurred. The disease was prevalent in Bellary in 1872, and 19 men of the corps were admitted there.

There are now only 12 men in the whole regiment who have not had the disease.

Dengue fever.— The admissions from this disease have, as before stated, amounted to 207. Dengue fever.

The nature of the disease, as it appeared in this corps, was of a mild type in the majority of instances, incapacitating the men, however, from their dismounted duties for an average period of 12 days. As a general rule the men were unable to mount their horses for a week or two after being discharged from hospital. In consequence of this all mounted parades were stopped soon after the epidemic had fairly set in.

The disease was ushered in by fever, lasting generally from 48 to 60 hours, accompanied by severe rheumatic pains in all the principal joints. The aching pains in the joints continued for about ten days after the cessation of the fever. The swelling of the joints was more marked in some cases than in others. In only five cases did any eruption occur. This was generally such as is seen in scarlatina. Relapses of fever were very frequent. The old men of the corps were very much longer in recovery from the consequent debility than others, also in shaking off the pains in the joints. In one case (that of an East Indian Farrier) functional palpitation of the heart appeared.

This was the only case where any secondary affections resulted. Two men were sent on sick leave who could not recover their strength sufficiently to return to duty. The treatment adopted was to use diaphoretic salines when the fever was very severe and preparations of bark after its cessation, hot fomentations to the joint. In some cases no treatment was required at all.

Ague. *Ague.*—The admissions from ague have amounted to 72 during the year, and this may be said to be *par excellence* the disease of Kamptee. Nearly half the cases were admitted during the two and-a-half months following the cessation of the rains of the south-west monsoon. A severe case has not been admitted, but in several instances the disease has continued to attack the same man and cause his re-admission into hospital. The type of the disease, as I have observed it, is generally marked by almost an entire absence of a cold stage and often by a sweating stage.

The paroxysm is ushered in by a sudden feeling perhaps of chilliness, followed almost immediately by heat of skin lasting several hours. The heat of skin generally returned daily at the same hour for several days.

Quinine has generally been used in the more obstinate cases in doses varying from 6 to 10 grains exhibited an hour before the expected attack; in others, sulphate of quinidine and cinchonidine, with infusion gentian compound, have been all the medicines required. I have sometimes found that this type of fever is complicated with biliary derangement, and has been brought on in the first instance by exposure to the sun.

A mild purgative of blue pill and colocynth, followed by a few one-grain doses of quinine, has been sufficient to effect a cure.

Bowel complaints. *Bowel complaints.*—There have been only three admissions from bowel complaints during the yeartwo of dysentery and one diarrhœa. The cases were of a trifling nature.

Diseases of the eye. *Diseases of the eye.*—The admissions from diseases of the eye, amounting to 11, have all been those of catarrhal ophthalmia. They were most prevalent during the rainy season in August and September.

Guinea-worm. *Guinea-worm.*—There have only been seven admissions from guinea-worm amongst the men. They all occurred soon after the arrival of the corps at this station, and were, I believe, contracted either at Bellary or on the march.

The disease does not exist apparently at this station. A large number of followers were attacked soon after the arrival of the corps from Bellary; the details are noticed under the head of "Followers' Diseases."

There have been very few cases of much professional interest in hospital during the year.

8th Regiment Native Infantry.

Station—Seetabuldee.

Arrived from Mercara 6th December 1873.

Average strength	684
Do. present	633
Admissions	748
Daily sick	22
Deaths in hospital	4
Do. out of hospital	4
Pensioned	26
Sick leave	22

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Mercara	98·90	4·01	1·45	13·68	2·18
1871 ...	Do.	104·10	3·77	1·21	6·23	3·49
1872 ...	Do.	91·14	3·60	1·13	1·84	4·39
Average ...	.....	98·04	3·79	1·26	7·25	3·35
1873 ...	Seetabuldee	118·16	3·47	1·16	3·80	3·21

The following medical officers were in charge during the year :—Surgeon-Major L. Beach, Surgeon-Major C. A. Andrews, and Surgeon T. V. Aylen, who reports as follows :—

Climate.—In the beginning of the year the season was remarkable for great atmospheric changes; during May the station was daily visited by severe thunderstorms, and the south-west monsoon set in unusually early, *viz.*, 26th May. During this month and throughout June and the beginning of July the rainfall was below the average. For the remainder of July and throughout August, September, and the beginning of October the monsoon was unusually severe. In August there was a break in the monsoon of ten days; after this, however, it commenced again with increased vigour. In October and November the weather was fine and genial; the rainfall for the year was 132 inches, being some 12 inches above the average. Climate.

Marches.—The regiment marched from Mercara on the 5th November, arrived at Bangalore on the 22nd, proceeded by train to Seetabuldee on the 26th, where they arrived on the 6th December. One case of small-pox occurred amongst the families. The admissions for ague during the march were very high; there were several cases of wounds and blistered feet. The men marched without boots. Marches.

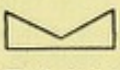
Sepoy lines.—The lines are situated in a basin or valley on the south side of the Fort at an elevation of 3,800 feet above the sea. Two springs arise from the sides of the valley, and, uniting, form a swamp at the bottom; a filthy village occupied by the Goolosor or cow-keepers is in immediate proximity to the lines. The position is rendered decidedly unhealthy by the proximity of this village and the vapour arising from the swamps; the latter has lately been improved by cleaning and draining, and some attempt at cultivation has been made, flowers and vegetables having been raised. Sepoy lines.

About half of the regiment (372) are located in the new tiled huts which are built in rows upon terraces; the walls are made of rammed earth 1½ feet thick; the ventilation is carried on by means of the door and a slight current of air through the tiles. The rest of the regiment is still located in thatched huts.

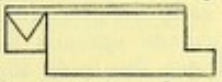
The main street is 18 feet and the subsidiary street 8 to 14 feet wide.

The following is stated by Dr. Andrews :—

"The men's huts are well ventilated as native huts usually are. The drainage is faulty; in some places there is not sufficient fall to carry off the sewage, which is removed by hand, or sinks into the earth. Stone cannot be procured for constructing new drains. I have proposed to build them of bricks moulded in a V shape, square below, to give them stability



fitting into one another at the ends to give continuous support



Each brick is 6 inches wide, 6 inches deep, and 18 inches long; some hundreds of these have already been made in the jail at a cost of 8 annas a yard; when connected and coated with tar they will form an open drain impervious to moisture. Glaze would be better than tar. I have been in communication with Dr. Hunter on this subject, who has kindly promised to send up a man to instruct us in glazing, the Municipality having undertaken to defray the expense.

"The subject has been brought to the notice of the Deputy Inspector-General, Indian Medical Department, and the Officer Commanding; and weekly reports of the drainage, being faulty, are submitted; sanction for money to improve the drainage only is required."

The authorities have not yet sanctioned the proposed scheme.

Nuisance.—The latrines and urinals during the year have been in a satisfactory condition; one pit for refuse matter, which had become full, was recommended to be covered over with earth and disused, which was accordingly done. Nuisance.

The drains, not being lined, have often proved a source of nuisance; the matter was represented, but no steps were taken.

Water-supply.—During the first part of the year water was scarce; after the setting in of the monsoon the supply was abundant. The supply was derived from one deep well, the water of which is very good, and from six shallow wells, which appear to be contaminated by sewage. Recommended that the principal well should be cleaned out during dry weather; this was done. Recommendations for the supply of pure water have been made, but nothing has been done by the Municipality. Water-supply

Diet:— Diet.

	lbs.	oz.	drs.			lbs.	oz.	drs.	
Rice	25	2	10	per rupee.	Tyre ...	23	2	13	per rupee.
Ragi	57	7	5	„	Curry-stuff ...	15	5	15	„
Dholl	10	11	5	„	Sugar ...	3	8	14	„
Meat	5	5	3	„	Bread ...	11	0	0	„
Milk	11	9	6	„	Vegetables ...	29	15	6	„

Provisions have been at about the same rates as last year; they were a little cheaper; vegetables were scarce. Compensation on account of dearness of rice has been given at the average rate of Rupees 1-11-11 per mensem.

The diet of the sepoys is sufficiently nutritive and varied.

Clothing.—The military clothing of the troops has been sufficient and adapted to the climate. No changes have taken place. Clothing.

Foot-soreness. *Foot-soreness.*—Twenty-three cases of blistered feet have occurred, but 13 of this number were during the march. In all these cases the men have been excused from wearing their boots.

Duty and exercises. *Duty and exercises.*—The duties at this station are generally very light; they consist of parades, ball-practice, guard-mounting, constructing lines, &c. The rains prevent any parades taking place for four or five months.

There is nothing in the nature of the duties prejudicial to the health of the troops. The men have 5¾ nights in bed.

Vaccination. *Vaccination.*—All recruits are vaccinated; one case of modified small-pox occurred in a sepoy who had been properly vaccinated some three years previously.

No re-vaccinations.

Two cases of small-pox occurred amongst the families.

Recruits	... 3	Were vaccinated; of these 100 successful.
Families	... 95	
Followers	... 22	

Diseases. *Diseases.*—There has been no epidemic disease. Malarious fever, generally of a mild type, has been prevalent among the troops.

No case of phthisis pulmonalis.

Four cases of pneumonia occurred, one of which proved fatal. Twenty-four cases of bronchitis and bronchial catarrh; many of these cases came into hospital in the first instance suffering from ague, the disease subsequently affecting the respiratory passages. Four cases of asthma.

Drill. *Drill.*—During the dry weather there are drills parades about five days a week from 7 to 8 A.M. and from 5 to 6 P.M. In the wet season the troops are drilled twice a week in the place of arms. The drills have no prejudicial influence on health.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the lock-up rooms and prison cells has been satisfactory.

Ventilation of the hospital. *Ventilation of the hospital.*—The ventilation of the hospital is very good.

There is ample accommodation for the average sick.

Drainage and latrines. *Drainage and latrines.*—The drainage is good, the latrines are kept in good order, the earth sewage has been efficiently carried out.

Hospital water-supply. *Hospital water-supply.*—The water-supply is good and abundant, being procured from a deep well (No. 1) situated near the hospital and above the lines.

General conclusions. *General conclusions.*—The health of the regiment does not appear to have been so good as in the preceding year; as the number of admissions for the eleven months over which this return extends gives an increase of 134 as compared with the corresponding period of last year, due to an increased number of admissions for ague, dysentery, diarrhœa, rheumatism, abscess and ulcers, wounds and accidents; on the other hand there was a decrease in the admissions for respiratory and venereal diseases; a good many cases of ague, blistered feet, and ulcers occurred during the march, thus contributing to raise the admissions beyond the average.

One case of modified small-pox occurred and eight cases of measles.

There were four deaths during the year as compared with three in the preceding year. In connection with this comparatively high rate of sickness are the following facts: great atmospheric changes in the commencement of the year; in January and February unusual prevalence of cold easterly winds; in May almost daily thunder-storms, and the setting in of the monsoon earlier than usual.

The drainage is defective consisting merely of channels cut on the earth to carry away the refuse from the houses; the drains are quite open and not paved or lined in any way. Defective water-supply; most of the wells, consisting of collection of surface water, containing decomposing organic matter and chlorides. These matters have been often brought to notice and suggestions made for their improvement, but no steps have been taken to carry out these recommendations.

Deputy Surgeon-General Ranking inspected this corps at Mercara on the 1st November 1873, and reports as follows:—

Barracks. *Barracks.*—I have no changes to report in the lines of the regiment. The new accommodation for a wing is complete. The other wing is to be hutted by the relieving regiment. The new lines are in good order, and the houses have stood well the rains of the monsoon, which were unusually heavy, the fall being about 20 inches above the average. The drainage and sewage is certainly defective and cannot be improved unless impervious drains are provided. During the rains the drains are sufficiently flushed, but during the dry weather the constant drip of the discharge pipes from courtyards sinks holes in the soil in which sewage lodges, forming chains of small cess-pools.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—Public buildings, as guard-rooms and latrines, are all in a satisfactory condition. Excreta from the latter are removed to a distance by contract, the contractor *receiving* Rupees 38 a month. Night-soil is not utilized. Coal-tar is used in the latrines.

Rations. *Rations.*—Food supplies have been abundant, but vegetables are scarce.

Water-supply.—Derived from deep and surface wells. The latter are apt to be contaminated. No further progress has been made in the proposition to bring in water from a spring at a little distance from the lines. Water-supply.

Recreation.—No special recreative amusements. Recreation.

Duties.—Moderate and not prejudical to health. Duties.

Nights in bed 6 to 1 on duty.

Conservancy of the neighbourhood.—The conservancy of the fort has received attention since last inspection, and is much better looked after than it was. The drains have been repaired, and the sewerage is much improved. The bottom of the valley, on the slopes of which the lines are situated, has been cleared of rank vegetation, but the Gowla village still remains, and is objectionable in a sanitary point of view. Its removal is certainly a desideratum. Conservancy of the neighbourhood.

Hospital.—The verandahs of the hospital are somewhat out of repair. The building is clean. The drainage is fair and ventilation good. There has been no overcrowding. The water-supply is derived from a well close at hand. General conservancy is well attended to. Hospital.

22nd Regiment Native Infantry.

Station—Hooshungabad.

Arrived from Palamcottah 20th January 1873.

Average strength	710
Do. present	704
Admissions	783
Daily sick	16
Deaths in hospital	5
Do. out of hospital	1
Pensioned	2
Sick leave	1

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Stations.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Palamcottah	33·91	1·44	·73	2·63	...
1871 ...	Do.	43·60	1·63	1·16	4·31	...
1872 ...	Do.	34·89	1·16	·58	5·40	·43
Average ...	.....	37·46	1·41	·82	4·11	·14
1873 ...	Hooshungabad	111·22	2·27	·84	·28	·14

Surgeons-Major J. J. Heffernan and J. Dougall, M.D., were in charge of the head-quarters of the regiment. The former officer reports as follows :—

Climate.—No instruments are supplied to the regiment, but I am enabled, through the kindness of the Civil Surgeon, to append a record of the fall of rain at this station for the year 1873, which is considered a fair average as compared with other years. Climate.

I have little more to say on this subject. When I joined the corps here at the end of March the nights were then decidedly cool and bracing with very agreeable mornings. April and the first part of May moderately warm, but from this time till about the 10th of June perhaps hot winds prevailed, the thermometer frequently registering over a hundred degrees in the hospital. During the next month the days were cool and cloudy; we had two or three dust-storms, and heavy rain frequently fell in different quarters and at no great distance from the station ; but, because of our close proximity to the Vindhya hills, it was not, however, until the 3rd July that the south-west monsoon may be said to have fairly set in here. The climate has not differed in any marked manner from previous years. During the latter half of October and for some six weeks following perhaps, the daily changes of temperature brought about an increase in febrile affections, and the same may be said to be the cause of a few cases of conjunctivitis. On the whole, however, the climate cannot be said to have exercised any very great injurious effect on the health of the men.

Meteorological Observations, noticing the Pressure of the Atmosphere, the Temperature and Humidity of the Air, the Fall of Rain, the Amount of Ozone and Cloud, the Prevailing Winds, and the Variations in the Weather.

—	Reading of Barometer No.				Temperature of Air.							Dry and Wet Bulb.		Mean Deduced Dew Point.	Mean Degree of Humidity.	Rain.		Ozone.		Wind.		Cloud.	
	Mean for Month.	Highest in Month.	Lowest in Month.	Range.	Highest in Month.	Lowest in Month.	Range in Month.	Mean of all Highest.	Mean of all Lowest.	Mean Daily Range.	Approximate Mean for Month.	Mean of Dry Bulb.	Mean of Wet Bulb.			Number of Days it fell.	Amount collected.	Mean at 8 A.M.	Mean at 8 P.M.	General Directions.	Estimated Strength.	A. M. 0-10.	P. M. 0-10.
	In.	In.	In.	In.	°	°	°	°	°	°	°	°	°	°			In.						
January	29·141	29·175	28·815	307	88	40	48	81	53	28	...	70·6	55·4	...	42	...	0·60	...	...	N.E.	65	2	2
February	29·030	29·139	28·820	319	95	50	45	85	57	28	...	73·6	59·3	...	38	...	...	...	...	S.W.	77	2	2
March	29·229	29·028	28·709	319	106	50	56	96	62	34	...	84·8	62·9	...	28	...	...	...	...	S.W.	54	...	...
April	28·846	28·930	28·634	296	108	60	48	105	74	31	...	95·3	66·5	...	15	...	...	...	...	S.W.N.E.	65	1	2
May	28·954	28·940	28·385	555	117	63	54	107	80	27	...	97·3	70·1	...	22	...	0·10	...	...	S.W.	67	2	5
June	28·666	28·743	28·390	353	111	70	41	103	82	21	...	91·8	74·0	...	42	...	1·0	...	...	S.W.	110	5	4
July	28·633	28·743	28·413	330	93	70	23	89	72	17	...	80·1	73·0	...	79	...	10·40	...	...	S.W.N.W.	89	9	8
August	28·754	28·901	28·530	371	94	70	24	86	74	12	...	80·0	75·4	...	81	...	10·40	...	...	S.W.	61	7	7
September	28·792	28·922	28·513	409	92	60	32	87	74	13	...	80·0	75·8	...	81	...	19·60	...	...	S.W.	56	5	7
October	28·971	29·959	28·801	258	93	50	43	89	62	27	...	81·3	68·0	...	46	...	...	...	...	N.W.	31	...	1
November	29·103	29·154	28·948	206	92	50	42	86	60	26	...	76·2	63·1	...	39	...	...	...	...	E.	51	1	2
December	29·108	29·184	28·878	306	85	41	44	80	55	25	...	68·4	57·6	...	47	...	...	...	...	E.	62	...	1
	347·227	347·575	343·839	4,029	1,174	674	500	1,092	805	289	...	979·4	801·1	...	560	...	42·10	...	...	...	788	34	41
Mean ...	28·935	28·989	28·653	335	94	56	41	91	67	24	...	81·6	66·7	...	46	...	3·50	...	...	...	65	2	3

The diseases by which these deaths, as well as the whole admissions into hospital in the course of the year, have been occasioned are specially detailed in return hereto (annexed) B, whereof the following is an abstract:—

Black Troops.

Diseases.	January.			February.			March.			April.			May.			June.			July.			August.			September.			October.			November.			December.			Total.	
	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.	Average of Weekly Remainings.	Admitted.	Died.
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Small-pox	...	...	...	...	...	...	1	...	·25	2	...	·50	...	...	1·25	13	...	3·25	14	...	3·50	7	...	1·75	2	...	·50	14	...	3·50	24	...	6·0	41	...	10·25	123	...
Ague and Influenza...	...	...	...	...	...	...	...	...	...	3	...	·75	5	...	1·25	13	...	3·25	6	...	1·50	5	...	1·25	1	...	·25	9	...	2·25	7	...	1·75	1	...	·25	20	1
Fever, Remittent ...	...	...	...	...	...	...	...	...	...	20	...	5·0	22	...	5·50	24	...	6·0	24	...	6·0	20	...	5·0	4	...	1·0	7	...	1·75	7	...	1·75	5	...	1·25	108	...
Do. Simple ...	2	...	·50	...	...	...	9	...	2·25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apoplexy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	·25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	...
Dysentery	3	...	·75	3	...	·75	1	...	·25	...	...	...	1	...	·25	...	...	...	3	...	·75	1	...	·25	1	...	·25	...	...	...	...	...	...	1	...	·25	11	...
Diarrhœa	1	...	·25	2	...	·50	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hepatitis	...	...	...	1	...	·25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spleen Disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	·50	...	...	...	...	...	...	...	...	...	...	...	16	...
Respiratory Diseases..	2	...	·50	5	...	1·25	1	...	·25	...	...	...	1	...	·25	...	...	...	...	...	...	...	...	...	...	...	...	3	...	·75	2	...	·50	...	...	...	1	1
Phthisis Pulmonalis...	1	1	·25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dropsy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scurvy	...	...	...	...	...	...	4	...	1·0	1	...	·25	4	...	1·0	1	...	·25	3	...	·75	1	...	·25	...	...	...	6	...	1·50	2	...	·50	2	...	·50	30	...
Rheumatism	1	...	·25	5	...	1·25	...	...	...	...	...	...	...	...	...	...	...	...	7	...	1·75	5	...	1·25	4	...	1·0	9	...	2·25	5	...	1·25	1	...	·25	1	...
Venereal Diseases ...	...	...	...	...	...	...	2	...	·50	1	...	·25	1	...	·25	4	...	1·0	5	...	1·25	3	...	·75	4	...	1·0	4	...	1·0	1	...	·25	3	...	·75	41	...
Eye and Ear Diseases.	...	...	...	2	...	·50	5	...	1·25	2	...	·50	1	...	·25	5	...	1·25	5	...	1·25	3	...	·75	4	...	1·0	4	...	1·0	4	...	1·0	...	...	...	39	...
Abscess, Ulcer, and Boils.	2	...	·50	4	...	1·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wounds and Accidents	3	...	·75	3	...	·75	4	...	1·0	1	...	·25	6	...	1·50	2	...	·50	1	...	·25	2	...	·50	...	...	...	4	...	1·0	...	...	...	...	...	...	31	...
All other Causes ...	123	...	30·75	65	...	16·25	25	...	6·25	15	...	3·75	8	...	2·0	9	...	2·25	20	1	5·0	20	...	5·0	24	...	6·0	18	...	4·50	13	1	3·25	9	...	2·25	349	2
Total ...	138	1	34·50	90	...	22·50	52	1	13·00	45	...	11·25	49	...	12·25	59	...	14·75	59	1	14·75	46	...	11·50	40	...	10·0	74	...	18·50	66	2	16·50	65	...	16·25	783	5

The number of daily sick in hospital at this station during the past year has been carefully registered by me, and the average amounts to 15·70 of the Black Troops, as per statement (annexed) D.
Having thus detailed the extent of mortality and sickness, I shall next proceed to state how far these may probably have been influenced by the following agencies.

Marches. *Marches.*—The head-quarters and left wing of the regiment arrived at Hooshungabad on the 20th January last from Palamcottah. It left the latter station on the 19th December 1872, marching to Caroor, but from thence to Etarsee travelled by rail. It marched from Etarsee to Hooshungabad, a distance of eleven miles, on the morning of the 20th January 1873.

Sepoy huts. *Sepoy huts.*—The lines are situated on the extreme west of the cantonment; the ground is high and gently sloping on all sides, so that the position is very favorable; the site, however, has been so long occupied that the soil must be quite saturated with filth, and indeed during the rains ammoniacal exhalations were very perceptible.

The huts are old and very inferior buildings, the walls being simply mat with a thin coating of mud, and the roof single-tiled. They are arranged in eight lines back to back, with a small enclosure about 13 × 10 feet in front of each. It should be remembered that in consequence of the number of followers with native corps the cubic space allowed to each man is something very small. The average of each family for the past year was about 2·40.

There were no marked defects either in regard to ventilation or drainage. The guard-rooms, &c., are pucka buildings, and are sufficiently well ventilated to preserve air pure.

Nuisance. *Nuisance.*—Conservancy has been well attended to, and no nuisance arose.

Water-supply. *Water-supply.*—The water-supply during the year has been quite sufficient for all wants. It is obtained from four different wells in the neighbourhood of the lines, and is considered of good quality.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements in the lines are satisfactorily attended to. There are no local causes of disease requiring removal.

Diet. *Diet.*—The Mahomedans partake of wheat-flour, dholl, &c., since the regiment's arrival here. The Hindus, in a much less degree, rice, the staple article of diet in the south, being even here the principal food, although it is at least twice as dear, the average being about 6½ Madras measures the rupee. Vegetables were cheap and abundant. Compensation was about Rupees 4.

The men buy their own provisions, and their pay is quite sufficient to feed them well; but when it is remembered that a large number, not only support a wife and children, but numerous relations, the under-fed condition of many, previously alluded to as a predisposing cause of disease, cannot be wondered at.

Clothing. *Clothing.*—The clothing is the same as that worn by all native regiments, and the greatest attention was bestowed on this matter with a view to preventing the ill-effects of a variable temperature. I am, however, of opinion that the present clothing of not only this corps, but of the native army, is not suitable to the climate. The summer clothing being too flimsy and the winter cloth too thick.

I would respectfully suggest that, what the sepoy requires is a kind of serge clothing that would preserve an equable temperature of the body under all climatic changes, and fashioned not to hamper his free action, but more after the loose style of a Zouave.

Foot-soreness. *Foot-soreness.*—The men provide themselves with the ordinary ankle-boots, which are worn on duty and parade, and 91 cases of shoe-bite were under treatment during the year; the practice adopted for cure being to exclude the air by means of a piece of simple plaster, and recommending the man to be excused from wearing boots till well. This treatment proved always successful, the average duration being 3·96 days.

As the sepoys never wear socks, as they purchase the boots wherever they can, and as they are generally ill-fitting and of country manufacture, invariably getting as hard as boards after being once wetted, the above result cannot be wondered at. With the dress suggested, a well-fitting sandal, the sole being of English-manufactured leather, and a gaiter that would, for protection sake, go well over the instep, would be, I think, found more suitable and much more comfortable.

Duty and exercises. *Duty and exercises.*—About three morning parades a week, lasting about an hour, varied by occasional route-march during the monsoon season, latterly rifle instruction morning and evening by companies in rotation, cleaning arms about 9 o'clock A.M. In the evening inspection parades, Adjutant's and defaulters' drill, &c. The above duties are conducive to the health of the men, and not in any way detrimental.

The men have had about four nights a week in bed.

Drill. *Drill.*—About one hour morning and evening, *i.e.*, from 6 to 7 A.M. and 5 to 6 P.M., for five days a week, Thursday being the holiday. The recruits generally improve in health while going through their drill, and the health of the old soldiers does not appear in any way to suffer. I never had occasion to make any recommendations on the subject.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The guard-room and solitary cells are satisfactory as regards cubic space and ventilation; they are cool and carefully cleaned. No defects observed.

Vaccination.—Vaccination has been energetically practised. Small-pox was prevalent more or less in this district for most of the year; and soon after the arrival of the corps here in January last, three recruits contracted the disease ; two cases assumed the confluent type, and one died of general debility consequent on the disease while away on sick leave. It appears the men were not vaccinated, and I learn this omission was due to the fact of the regiment being about to march at the time of their enlistment. Vaccination.

In April all the recruits enlisted since May 1872 were carefully examined, and those who did not bear a well-developed vaccine cicatrix were re-vaccinated, the result being out of a total of 44 vaccinated all were successful. Many children and followers of the regiment were also vaccinated, so that at present not more than three very young children and 20 Gosha girls remain unvaccinated in the lines.

Diseases.—No epidemic, properly speaking, prevailed. Fevers were prevalent from about the middle of October to the end of the year, and no doubt due to atmospheric changes. I need hardly say that those inadequately protected, and with a low vitality, were more susceptible; they were, however, generally speaking, of a mild character ; the intermittent type prevailed. The disease could not be traced to overcrowding or defective ventilation. The drainage was not defective, and the water-supply was abundant and good. Diseases.

The ten cases of chest affection are attributable to sudden chills, either produced by sitting exposed to a cold wind after being heated or by careless exposure of the naked chest to cold winds.

Ventilation of the hospital.—The hospital ventilation was perfect. Never any overcrowding. Ventilation of the hospital.

Drainage and latrines.—Drainage good. Latrine kept in good order on the dry-earth system, coal-tar being freely used. No representations required. Drainage and latrines.

Hospital water-supply.—Good and abundant. Hospital water-supply.

General conclusions.—From the foregoing it will be seen that there has been no unusual atmospheric phenomena, and the rainfall was an average one. The cantonment is situated on a healthy site, and the natural drainage is good ; the soil is dry, and there are no physical features of the country to render the station unhealthy. The regiment, as well as the district generally, has been free from any epidemic, and the fevers as they occur here, although prevalent during certain seasons, are not of a severe character. General conclusions.

Deputy Surgeon-General Tribe inspected this corps on the 7th March 1874, and reports as follows :—

Barracks.—The lines are well drained both naturally and artificially, being on ground sloping on both sides north and south and clean ; but the medical officer informs me that during the monsoon they are disgustingly offensive from the ground on which they are built being saturated with filth, more particularly with urine. Never having visited these lines during the monsoon, I can say nothing on the subject from personal observation, but at present I can perceive nothing offensive. The lines of huts are overcrowded, and it is to be regretted that, when Hooshungabad ceased to be a station for a full regiment and half the lines were removed, the alternate rows of huts were not pulled down instead of one whole wing. There were close to the lines a number of huts occupied by chucklers and others of the lowest caste, which have been removed by the present commandant beyond military limits. Barracks.

Sanitary condition of all buildings.—All are in good sanitary state. There are no cess-pools, but according to the medical officer the compound of every hut appears to be a sort of cess-pool. The present commandant, Colonel Stoddart, has built cutcha latrines for the men, in which are trenches filled with dry earth as fæces are deposited, but these will be of little use in the wet weather. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—The conservancy of the lines might probably be improved, but to judge of their sanitary state, or to make suggestions for their improvement, they must be visited in wet weather. There are a number of small nullahs in the immediate neighbourhood of the magazine and other subsidiary buildings, to prevent the fouling of which Colonel Stoddart has, as before mentioned, erected latrines. Conservancy of the neighbourhood.

Hospital.—In every respect in good order, being clean, well drained, and well ventilated ; nominally it accommodates 42 patients, but with this number of cots the wards would be inconveniently crowded. Hospital.

31st Regiment Light Cavalry.

Station—Raipore.

Arrived from Berhampore 1st March 1873.

Average strength	703
Do. present	693
Admissions	497
Daily sick	13
Deaths in hospital	9
Do. out of hospital	1
Pensioned	28
Sick leave	3

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Right Wing, Berhampore ... Left Wing, Sumbulpore ...	105·27	3·26	1·86	2·48	...
1871 ...	Right Wing, Berhampore ... Left Win, Sumbulpore ...	62·20	2·33	1·08	3·55	1·85
1872 ...	Right Wing, Berhampore ... Left Wing, Sumbulpore ...	117·88	3·23	1·26	·70	·98
Average...	.....	95·11	2·94	1·40	2·24	·94
1873 ...	Raipore	70·27	1·87	1·42	3·98	·42

Surgeon E. M. Murphy, M.D., has been in medical charge during the year, and reports as follows:—

Climate. *Climate*.—There was a failure of the north-east monsoon, in consequence of which paroxysmal fevers and rheumatic affections were much less than in preceding years. There was nothing else noteworthy in the climate of the year.

Marches. *Marches*.—The right wing of the regiment left Berhampore on 13th January and arrived, by marching, at Raipore on the 1st March. The left wing marched from Sumbulpore in February and arrived in the same month at this station.

Sepoy lines. *Sepoy lines*.—The lines of the men are situated in an isolated position about half a mile to the east of the town. The situation is slightly sloping, and is healthy.

The huts have the usual openings of native houses. They seem to be sufficiently conducive to health.

The ventilation of the huts and cells is pretty good. That of the guard-room is very good. Slops from each hut escape through a circular opening in the yard wall into the street drains. These drains are only cutcha. Though these drains are swept daily and there is a natural slope of the ground, the more fluid portion of the slops must necessarily soak into the ground. Stone drains would be a great improvement.

Nuisance. *Nuisance*.—There was no nuisance from any of these causes; every place was kept very clean, and all refuse and sewage matters were removed daily to a distance.

Water-supply. *Water-supply*.—Water is obtained from several wells and tanks in the vicinity of the lines. It was abundant and of good quality. I recommended that the water of one tank, which had run low and bad during the month of May, should not be used, and the advice was carried out. After the rains it became fit for use.

Sanitary arrangements. *Sanitary arrangements*.—The sanitary arrangements have been properly attended to. The construction of stone drains would doubtless increase the healthiness of the corps, though no ill-effects from the present state of things are observable.

Diet. *Diet*.—Provisions of all kinds have been abundant and cheap. No compensation was consequently allowed.

Clothing. *Clothing*.—The clothing of the troops has been sufficient and adapted to the climate. No changes were recommended.

Foot-soreness. *Foot-soreness*.—Native-made slippers are worn. No foot-soreness resulted therefrom.

Duty and exercises.—The nature of the duty performed by the troops was the usual regimental guard-mounting, besides guards supplied to the jail and treasury. Parades were held five days in the week during the cold weather and twice or occasionally three times in the hot weather. These duties were comparatively light, and were not prejudicial to the health of officers or men. The average number of nights in bed weekly was four. Duty and exercises.

Drill.—The drills continued from 5 A.M. to about 7 A.M. in the hot weather, and from 6 A.M. to about 7½ A.M., later or earlier, in the cold weather. The influence of the drills on health has been favorable. No recommendations on the subject were made by me. Drill.

Lock-up rooms and prison cells.—The lock-up rooms and cells are sufficiently spacious, and are fairly ventilated. No injurious effects on the health of men confined in them have been noticed. No recommendations on the subject were made by me. These buildings were constructed according to the regulation plan most recently adopted. Lock-up rooms and prison cells.

Vaccination.—Vaccination is strictly carried out. All recruits are vaccinated before being allowed to join. One extremely mild case of small-pox took place. The man had been previously successfully vaccinated. The whole regiment, *viz.*, 685 men, were re-vaccinated during the year with a result of 310 successful cases. Vaccination.

Diseases.—The right wing of the regiment was, in February, attacked with cholera during the march from Berhampore to this station. 81 individuals in camp—13 of these being fighting men and the rest members of families and followers—were attacked, with a mortality of 31, five of these being fighting men. The precise source of the disease could not be traced, except that it was in some way due to infected pilgrims coming from Juggernaut. No insanitary conditions existed in the camp. There were cerebral complications in three of the fatal cases. In no fatal case did re-action set in before death. The average period before death was about 48 hours. No other epidemic existed in the regiment. Diseases.

There was no case of phthisis pulmonalis in the regiment during the year. There were altogether only three admissions for diseases of the chest, *viz.*, one for bronchitis and two for asthma. No deaths occurred.

Ventilation of the hospital.—The hospital has excellent ventilation, *viz.*, by ridge and opposite doors, also by ventilators. It is a very lofty and spacious building. Ventilation of the hospital.

There has been no overcrowding.

Drainage and latrines.—There is no system of hospital drainage. The entire place is nevertheless kept very clean and free from anything insanitary. The latrines are always clean and free from smell. The dry-earth system is carried out in them. Drainage and latrines.

Hospital water-supply.—The water-supply is good and abundant. It is brought daily to the hospital by water-carriers. Hospital water-supply.

General conclusions.—Only for the outbreak of cholera, which was contingent on the march, the regiment would have been very healthy during the year. Even as it was, the sickness and mortality were not greater than in the preceding year. During the ten months of the year the regiment has been in Raipore only three deaths took place, and one of these was due to mere accident, *viz.*, death by burning at a native festival. The regiment was singularly free from ague in so malarious a station as Raipore. The admissions for that disease were not, I believe, half the average of the admissions in the 11th Regiment, which preceded this regiment. This was doubtless due to the failure of the north-east monsoon this year. General conclusions.

Deputy Surgeon-General Tribe inspected this corps on the 12th November 1873, and reports as follows:—

Barracks.—The lines are in a good sanitary condition, well ventilated, and well drained, though I am told that the huts at the lower part of the ground occupied by the left wing are damp during the monsoon; but, except in June, the admissions have not been markedly more numerous in the left than in the right wing. These lines were built by Government about the time of the mutiny, and, the Commandant who built them being unfettered by regulation, are vastly superior to any that I have yet seen, though the compounds are too small. The privates' huts average 18 by 10½ feet, the largest being 22 × 13 feet and the smallest 14 × 9 feet. In eight months that the regiment has been here the deaths among the followers have been only 35, say 40 for the nine months; and, as the followers number 1,850, this is only 2·2 per cent. Barracks.

Sanitary condition of all buildings.—All subsidiary buildings are in a good sanitary condition, and all excreta are conveyed to a distance and buried. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—Very good. Conservancy of the neighbourhood.

Hospital.—The hospital is on the old standard plan, clean, well ventilated, and nominally holds 50 patients, but will hold many more. Good water from a well. Hospital.

35th Regiment Native Infantry.

Station—Kamptee.

Arrived from Madras 14th January 1872.

Average strength	690
Do. present	690
Admissions	737
Daily sick	24
Deaths in hospital	10
Do. out of hospital	3
Pensioned	13
Sick leave	13

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Madras	31·03	1·58	1·29	·86	...
1871	Do.	34·75	1·62	1·15	3·03	1·87
1872	Kamptee	100·14	3·11	2·13	2·41	1·84
Average ...	.....	55·30	2·10	1·52	2·10	1·23
1873	Kamptee	106·81	3·47	1·88	1·88	1·88

The following medical officers were in charge during the year :—

Surgeon-Major B. T. Suffrein.
Surgeon W. E. Johnson, M.D.

The latter officer reports as follows :—

Climate. *Climate.*—During the past year the heat in the hot weather was not so intense as is usual in Kamptee, and was followed by a very scanty rainfall, in consequence of which the number of cases of ague amongst the men and their families was greatly less than during the previous year of 1872.

Marches. *Marches.*—None.

Sepoy huts. *Sepoy huts.*—The men and their families live in mud huts built by themselves or bought from the former owners. Their huts are in every respect like the houses occupied by civil members of the native community of decent class.

The means of ventilation are as good as could be insisted on with natives, but the drainage is very defective, chiefly owing to the roads intersecting the elevated ground on which the huts stand having been sunk so as to make them on a level with the surrounding ground. This is an evil of long standing, and, as the ground must, therefore, have become thoroughly saturated with fluid refuse, it has been recommended that the lines should be removed to another site, but this recommendation, it is greatly regretted, has not been carried out.

Nuisance. *Nuisance.*—During the early part of the year there was an undue accumulation of refuse matters in the receptacles provided for their temporary deposit owing to the inadequate means adopted for their removal; on this being represented, additional means were provided.

Condition of the water-supply. *Condition of the water-supply.*—The water for drinking and ablution is obtained partly from the river Khanan and partly from wells in the lines. The well specially set apart for drinking purposes was some distance from the lines and not liable to contamination from soakage as are the wells in the lines. Water-supply is abundant.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements in the lines have been well attended to, and I am not aware of the existence of any local causes of diseases excepting that mentioned above, to remove which the lines must be abandoned.

Diet.—Animal food and dry grain have been cheap, but rice, the staple article of food of the Madras sepoy, is scarce and dear in this district, in consequence of which the men receive rice-compensation. Vegetables were plentiful and cheap during the rains and cold season, but very scarce and dear during the hot season. Diet.

Clothing.—Clothing has been sufficient and adapted to the climate. On the 21st October I recommended that winter clothing should be worn by the men on all duties. Clothing.

Foot-soreness.—None. Foot-soreness.

Duty and exercises.—The duty generally has consisted of ordinary drills, mounting guards, &c., and has not, in my opinion, been of a nature or extent to injure the health of the men; but about the beginning of the year, and especially towards the latter part of it, a number of the sepoys who unavoidably had to proceed on escort duty to several of the minor stations in the Central Provinces suffered from a severe form of ague. Duty and exercises.

Average number of nights in bed, 3½.

Drill.—Drill takes place for recruits and companies daily for about two hours in the morning and for about one hour in the evening. The entire regiment goes out for drill about three times a week early in the morning for about two hours. These drills were almost altogether discontinued during the rains, and generally are not prejudicial to the health of the men, but during the prevalence of dengue fever it was recommended that running drill should be stopped for the period of one month. Drill.

Exercises.—There is a gymkhana in the station well supported bythe officers and other residents, but only the European troops take part in them. Exercises.

Lock-up rooms and prison cells.—Sanitary conditions of these buildings have been good. Lock-up rooms, &c.

Vaccination.—Vaccination has been carried on as far as practicable among the men and their families. Two deaths among the men from small-pox have occurred when properly vaccinated. No men have been re-vaccinated. Vaccination.

Diseases.—Dengue fever has been the only epidemic in Kamptee during the year under report. This disease first made its appearance among the civil population in May, and in June it attacked the men of the 35th Regiment. There is no doubt this disease spread from Nagpore, where it had appeared some months previous. Dengue fever presents many of the symptoms of scarlatina combined with those of rheumatism. On its first appearance here it presented the usual characters of intense fever, a white, furred tongue with a red margin, usually constipation with head-ache, and severe pain in the joints, which were in many cases greatly swollen. The pyrexia and headache usually subsided about the third or fourth day, and about this time a copious, scarlet-colored rash made its appearance among the Europeans and fair-complexioned natives. Secondary fever of a less severer form than the primary came on about one week after the commencement of the attack and lasted for four or five days, but this fever became much less frequent towards the decline of the epidemic and during the last two months had entirely disappeared. Diseases.

The defective drainage of the lines appears to have had the effect of both aggravating the severity of the disease and prolonging the period of its prevalence.

Only two cases of phthisis pulmonalis occurred during the year, and of these one recovered so far as to be able to do his duty, and the other is at present under treatment in hospital. Both are, I believe, due to constitutional causes. One case of pneumonia (fatal) occurred in a man who was under treatment for dengue fever and who had just returned from sick leave to Madras.

The number of cases of chest affections compared favorably with 1872 owing, no doubt, to the mildness of the cold weather.

Ventilation of the hospital.—Ventilation good; takes place through numerous doors, windows, and along the centre of the roof above. Ventilation of the hospital.

Overcrowding of the wards unavoidably took place during the prevalence of dengue fever.

Condition of the drainage and latrines.—The site of the hospital is on low ground, at the foot of the elevation on which the lines are situated, and during the rains the drainage must be very bad. The latrine is built on the old principle with a cess-pool, and as far as the limited establishment will admit the dry-earth system of conservancy is carried out. Condition of the drainage and latrines.

Hospital water-supply.—The water-supply for the hospital is the same as that for the lines. Hospital water-supply.

General conclusions.—The health of the men has not been satisfactory during the past year owing to the prevalence of dengue fever and ague, and also owing, in a great degree, to the bad situation of the lines and the poverty of the men, which prevented them from buying food of a sufficiently nourishing quality to keep them in good health, and this last state will continue to exist so long as the men continue to support numbers of their relatives. General conclusions.

Deputy Surgeon-General Tribe inspected this corps on the 1st October 1873, and reports as follows:—

Barracks.—The lines of the 35th Regiment Native Infantry at Kamptee are, what is called, clean and well ventilated, though not well drained, *i.e.*, there are broad streets between Barracks.

the lines of huts, which are swept clean, and there are no accumulations of filth; but the huts themselves are, like the usual native hut, without ventilation, and wherever a sepoy has a family the accommodation is absurdly small, more particularly when compared with that allotted to criminals. It is a matter of surprise that a Government which is so particular about the amount of superficial and breathing space wherever provided by themselves should never have been moved to make some regulations in this respect regarding their sepoys. As to the unhealthiness of these lines there can be little doubt; as, since the arrival of the regiment here without any epidemic seriously affecting life, 153 out of 1,547 of the followers—10 per cent.—have died. As regards drainage, the natural drainage has been interfered with without any proper artificial drainage having been made to supply its place. There is not a single V-drain in accordance with the regulations.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The buildings connected with the lines are in a fair sanitary condition; all excreta are conveyed to a distance and buried. There are no latrines except those supported by the Municipality, the nearest of which is inconveniently far. Filth is daily removed from the sepoys' houses.

Conservancy of the neighbourhood, &c.

Conservancy of the neighbourhood of barracks.—Admirable.

Hospital.

Hospital.—The hospital has been minutely described in my annual report for 1869. It is an old building, and the walls have sunk somewhat; but it is well ventilated, holds on a stretch 36 patients very well, and is well drained. Water from the same sources as the lines.

BRITISH BURMAH DIVISION.

Average strength	2,639
Do. present	2,482
Total admissions	2,562
Daily sick	89
Deaths in hospital	27
Do. out of hospital...	27
Pensioned	2
Sick leave	96

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Rate per Cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	102·55	5·00	2·25	·37	4·29
1871	93·53	3·48	1·94	...	3·44
1872	151·01	4·92	2·13	...	5·88
Average	115·69	4·46	2·10	·12	4·53
1873	103·22	3·58	2·04	·07	3·63

The following corps were serving in the division on the 31st of December 1873 :—

14th Regiment Native Infantry.
1st do. do.
10th do. do.
27th do. do.

Deputy Surgeon-General Burn was in administrative charge of this division up to 28th March 1873. He was succeeded by Deputy Surgeon-General Duff.

1st Regiment Native Infantry.

STATION—THAYETMYO.

Arrived from Kamptee 31st January and 13th February 1872.

Average strength	672
Do. present	639
Admissions	273
Daily sick	12
Deaths in hospital	7
Do. out of hospital	1
Pensioned	...
Sick leave	3

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Kamptee	67·97	3·47	2·17	2·89	3·47
1871	Do.	95·84	4·15	·68	5·10	2·89
1872	Thayetmyo	112·25	2·36	·59	...	2·20
Average ...	.....	92·02	3·32	1·14	2·66	2·85
1873	Thayetmyo	42·72	1·87	1·19	...	·44

Surgeon Robertson, M.D., and Surgeon Butler have been in medical charge of this corps during the year. The latter reports as follows :—

Climate.—The climate of the station during the past year has borne its usual character. The highest mean maximum was registered in the month of March, being 104°·5; the minimum in the same month being 58°, the variation being 46°; the coldest month being December with a variation of 39°. Climate.

The greatest number of admissions into hospital were in February and September; in the former for bronchial catarrh, in the latter for ague. Cholera prevailed in the station in the hot months, and in connexion it may be remarked that the monsoon did not set with its force, and was very partial at the commencement. It was noticed that there were heavy dews about September after the cessation of the rains.

Marches.—None. Marches.

Sepoy huts.—The barracks are well situated on natural elevation of the ground, running almost directly north and south with a slope to the west, and may be considered the best site in the station. Sepoy huts.

The barracks are constructed on the principle of all houses in Burmah, being built of teak and earth-oiled. The general plan of construction is good as regards each individual building, but faulty inasmuch that they are placed too close together, and during the prevalence of a north or south wind the end buildings almost completely cut off the current from the rest.

Defective drainage has been noticed around the cook-houses and right-wing barracks, which has frequently been brought to notice by me without material result; but this cannot be efficiently remedied without the construction of pucka brick drains, and the sanction for such construction has not as yet been obtained, the necessary outlay being probably considerable.

Nuisance.—The latrines were somewhat offensive at one period owing to the inefficient use of dry earth. A sentry was appointed to see the system more effectually carried out. The urinal, also being out of repair, was brought to notice and repaired; no other nuisances presented themselves. Nuisance.

Water-supply.—Good; derived from four wells in the lines and one in hospital compound. Water-supply.

The quality reported to be good, but to contain a slight excess of salt and nitric acid.

Sanitary arrangements.—The sanitary arrangements have been well attended to, and there would not appear to be any local causes of diseases, except perhaps the drains before noticed. Sanitary arrangements

Diet. *Diet.*—Provisions have been supplied to the troops in accordance with the scale laid down for native troops on foreign service. Vegetables are, as a rule, abundant, but scarce during the hot weather.

The quality of the ghee supplied is generally found to be inferior, it being difficult to procure good ghee in Burmah. Compensation was allowed.

Clothing. *Clothing.*—The uniform worn by the troops has been varied to suit the variations of the climate, but the ordinary undress of the sepoy is not sufficient protection against the great daily range at certain seasons, especially in the cold weather.

Foot-soreness. *Foot-soreness.*—Not to any great extent.

Duty and exercises. *Duty and exercises.*—The duties performed have been of the usual routine character, consisting of regimental and garrison guard and orderly duties, sixty men being daily thus employed. This has in no way injuriously affected the health of the regiment.

The average number of nights in bed has been five.

Drill. *Drill.*—Drilling takes place daily, Sundays and Thursdays excepted, between the hours of 6 and 8 A.M. and 4 to 6 P.M.

There would appear to have been no injurious effects from such drills.

Condition of lock-up &c. *Condition of lock-up rooms and prison cells.*—Good.

Vaccination. *Vaccination.*—Fifty-two, many being re-vaccinations, twelve proving successful. No deaths from small-pox.

Diseases. *Diseases.*—During the past year cholera has visited the station in an epidemic form, and also made great havoc in the jail and Burmese town. The 1st Regiment, however, escaped with only one case during the epidemic, and another occurred on command at Tayrangoon months after the cessation of any other case in the district. This, however, proved to be a solitary case, but was not seen by me in person owing to the impossibility of procuring a boat in which to cross the river.

Ague prevailed in September, there being 26 cases of this alone. It was remarked that there were heavy dews at night, and the weather became favorable for the propagation of this disease, there being fogs present in early morning and evening, having their origin in the surrounding jungle.

There have been no defects in the sanitary condition of the lines, &c., to which any of these diseases could be traced.

Ventilation of the hospital. *Ventilation of the hospital.*—The ventilation has been excellent. There has been no overcrowding.

Drainage and latrines. *Drainage and latrines.*—The drainage around the hospital and compound leave nothing to be desired. The latrines were found to be in an unsanitary condition owing to the soakage into the floor. A recommendation was presented, and the latrines were thoroughly repaired, and wells with drains dug for the reception of the urine. They are now in a very efficient state. The dry-earth system is carefully carried out.

Hospital water-supply. *Hospital water-supply.*—Good. Derived from a well in the compound.

General conclusions. *General conclusions.*—From the foregoing report it will be seen that the number of admissions have greatly decreased during the year as compared with last year, being 273 and 760 respectively. This diminution may in great part be accounted for by the prevalence of dengue in 1872, from which disease alone there were 343 admissions.

There have been eight deaths in the regiment—seven in hospital and one on detachment duty at Tayrangoon. Of the former the causes were the following: one from cholera, two valvular disease of heart (both of short duration), one hepatitis with abscess, one congestion of liver, coma supervening, and two from debility following ague. Of the latter the cause was cholera, being a solitary case occurring long after the epidemic had disappeared.

The health of the regiment may be said to have been good, and notwithstanding the presence of cholera in station, from which the Europeans suffered severely, only one case occurred in the Native Infantry lines.

Early in the year two European Officers—the Adjutant Captain Dickinson and Assistant Surgeon Hanks in medical charge—proceeded to Europe on sick certificate, the former for intractable ulcers and hepatic congestion and the latter for severe concussion of the brain. Only three of the remaining officers have been attacked by slight ailments.

This corps was inspected by Deputy Surgeon-General Duff on the 31st January 1874, who reports as follows:—

Barracks. *Barracks.*—The barracks, 15 in number, are erected on a natural elevation of the ground running almost directly north and south with a gentle slope on the western side, and may be considered the best site in the station.

They are cleaned out regularly, all refuse matter being removed by the regimental conservancy cart, and conveyed to some distance into the jungle. They are in a fairly clean condition.

The ventilation is effected by means of doors and windows. Each left wing barrack has 10 doors, each measuring 7′ × 4′, and 30 windows 3′ × 2′. Ten smaller blocks are assigned to

the right wing, each having 5 doors 7′×4′ and 19 windows 3′×2′. Each building is also ventilated by means of openings in the roof extending along the whole length of the building 64′×2′.

The lighting is good, being effected by means of the doors and windows during the day and by lamps at night, suspended from the roof, 17 for the right and 18 for the left wing barracks.

The left wing barracks consist of five blocks, each measuring 111 feet in length, 26 feet in breadth, and 15 feet in height.

The cubic area of each building is 43,290 feet, the average cubic space per man 1,052 feet, and the superficial area per man 70 feet.

The right wing barracks, 10 in number, measure each 64 feet in length, 28 in breadth, and 15 in height. The cubic area of each building is 27,360 feet, the average cubic space and superficial area per man is 698 and 46½ feet, respectively.

The drainage is good. It is effected by means of configuration of the ground which slopes to the west and north, and by means of nullahs which intersect the lines. The left wing barracks have pucka-built drains, the right wing simple drains dug in the soil.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—There are two latrines; the large one, built of wood, is 72 feet long and 21 feet wide, and is divided into 44 compartments. Each compartment is provided with an iron pail, and to every four there are one basket of dry earth and one scoop. There is a recess on each side of the main entrance, 8′×7½′, used for storing dry earth. At the south end of the building there is a pucka platform with drains leading to a well outside for urine. The small latrine, 24×16, is divided into six compartments. It is situated about 100 yards from the most northerly barrack and in line with large latrine. There is no urinal.

The dry-earth system is in force, and a sentry is placed over large latrine to see it efficiently carried out. The excreta are daily removed by carts and buried in pits in the jungle a mile beyond cantonment limits. There are no cess-pools. Coal-tar is freely used.

The guard-room is a pucka building, well ventilated, and kept clean. It consists of three rooms—1 for the guard, 1 for the Native Officer of the day, and 1 for the prisoners; superficial area 1,394 feet.

The solitary cells, two in number, are pucka built, well ventilated by means of gratings, and kept clean. It possesses a cubic area of 1,417 feet, and a superficial space of 105 square feet.

The cook-houses, two at each end of the lines, are pucka built. Each is divided into eight rooms, affording 32 in all, to suit prejudices of caste. The rooms are kept clean.

Conservancy of the neighbourhood of barracks.

Conservancy of the neighbourhood of barracks.—The conservancy of the barracks and station is good. All rubbish is removed by regimental and conservancy carts to a considerable distance north of the station and deposited in the jungle. Occupiers of houses pay Rupees 3 monthly for conservancy efficiently carried out. Excreta are removed by carts at night.

Hospital.

Hospital.—Condition of the building good. It is situated on rising ground in an open plain north-west of lines. It is clean and well kept. The drainage is excellent—1st, by means of pucka drains round the building carrying off surface-water readily; 2nd, by means of natural configuration being on raised ground with a considerable slope to the west, north, and east. It is ventilated by means of doors, 14 in number, each 7×4 feet, also by a shaft in roof 14 inches in breadth, and extending throughout the entire length of the building. Accommodation is good. The ward measures 116×22×16 feet, and is capable of holding 24 beds, giving to each a superficial area of 106⅔ feet and cubic area of 1,701⅓ when the hospital is full, but this seldom occurs. The water-supply is good and obtained from a well in the compound at a depth of about 30 feet, abundant, and of good quality. The well is never dry.

The conservancy of the hospital is carefully attended to. Rubbish is removed by regimental conservancy carts. The excreta is conveyed by night-carts to the jungle about a mile and-a-half distant and buried in pits. The dry-earth system is carefully carried out, and coal-tar freely used.

10th Regiment Native Infantry.

Station—Tonghoo.

Arrived from Dorundah 31st January and 28th February 1872.

Average strength	685
Do. present	632
Admissions	799
Daily sick	28
Deaths in hospital	5
Do. out of hospital	8
Pensioned	1
Sick leave	40

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Dorundah...	53·35	3·20	1·67	3·35	...
1871 ...	Do.	62·09	3·27	·88	2·64	·14
1872 ...	Tonghoo	155·75	5·75	1·09	...	2·66
Average ...	.....	90·39	4·07	1·21	1·99	·93
1873 ...	Tonghoo	126·42	4·43	1·89	·14	5·83

Surgeon W. Price, M.D., has been in medical charge of this corps during the year, and reports as follows :—

Climate.

Climate.—The year 1873, as compared with 1872, was trying and unhealthy. This was apparently due to the length and severity of the hot weather, to the late setting in of the rains, and to the sudden onset and continuous character of the rains when they did come; from the latter cause we enjoyed very few of the bright sunny days usual during breaks in the rains in this station, and which are most useful in allowing the ground to get rid of some of its superfluous moisture and in removing the depressing feeling caused by the long-continued damps.

January and February were cool, pleasant months; during the former fogs were frequent in the mornings, and the nights were cold. There was a slight shower on the 2nd of February; in this month the days began to get warm, but the nights still remained cool. In March the hot weather began to set in, but there was still a considerable difference in the temperature of the days and nights, the mean daily range being 23°·6. In April it was hot, the thermometer in the shade reaching 100°·5 on the 9th; the nights were also hot. There were very slight showers on five days during this month, but they were so slight that they had no appreciable effect in cooling the atmosphere. During May the heat continued to increase, as the rains did not set in until the 27th of the month. The hottest day occurred during this month, the thermometer in the shade reaching 103·8 on the 20th.

During June, July, August, September, and October the rains continued almost without intermission, the atmosphere always remaining warm, damp, and muggy. With the exception of June, these months were very unhealthy, dysentery and diarrhœa being frequent and severe. In November the rains ceased, there being only two slight showers on the 2nd and 3rd; the temperature decreased considerably; and during the latter part of the month slight fogs were present at sunrise. The sudden fall in temperature brought on ague among the men. December was like January—cold nights, heavy fogs in the morning, and a hot sun during the day. During the hot and rainy months the prevailing wind is from the south and south-west, during the cold months from the north and north west; at the changes of the seasons it is very variable.

Marches.

Marches.—A detachment of the regiment consisting of two Native Commissioned Officers and 109 rank and file left Tonghoo on the 2nd January 1873, marching by the road, in order to relieve the detachment at Shoagheen. It reached Shoagheen on the 11th January 1873. The detachment stationed there during 1872 left on the 13th January 1873, 2 Native Officers and 107 men marching by road, and eight men, unable to march, coming up by boat. The former arrived in Tonghoo on the 22nd January, the latter on the 20th January 1873.

Sepoy huts.

Sepoy huts.—The barracks are built in two rows, each row running nearly due north and south, and each barrack east and west. To the east of the barracks are the regiment cook-rooms and to the south-east the regiment parade-ground. To the east, south, and west of this plot of ground there is a broad ditch which becomes a swamp in the rainy season; outside this ditch is low jungle. As the ground on which the barracks are built is some thirteen or fifteen feet higher than the swamp, the position appears to be healthy.

The barracks are built entirely of wood, and are raised six and-a-half feet from the ground; the windows and doors are numerous, the rooms lofty, and general construction such as to be conducive to health.

Ventilation and drainage.

Ventilation and drainage.—In the men's barrack-rooms the means of ventilation are good; in each room there are eight doors, each 6 feet 9 inches in height and 3 feet 11 inches in breadth, and thirty-two windows, each 3 feet 3 inches in height and 3 feet in breadth; besides these there are special means of ventilation in the ridge, and also on a level with the floor; in the latter place there are boards to be lifted up or let down as the direction and

temperature of the wind may require. In the guard-room the ventilation is on the same plan as that in the barrack-rooms.

The drainage around barracks consists merely of trenches to carry off the surface-water, which flows into the large ditch or swamp before referred to. Owing to the great fall on the west and south into this swamp, the ground around the barracks is kept fairly drained; but I think that pucka drains, such as those around the European barracks, would not only give the place a neater appearance, but also be very useful in preventing any water soaking into the ground under the barracks.

Nuisance. *Nuisance.*—There has been no nuisance during the year. The regimental latrine is supposed to be conducted on the dry-earth system; but owing to the faulty construction of the latrine, and the objection of the sepoys to use the dry earth, the latter cause chiefly acting, the attempt is not even partially successful. However the ordure is removed twice daily, and the latrine has consequently not caused any nuisance during the year. On only one occasion was it necessary for me to draw the attention of the Officer Commanding to its state, which was remedied immediately.

Water-supply. *Water-supply.*—There is one well close to the Native Officers' cook-room and two others between the three regimental cook-rooms; these have been deepened and surrounded by pucka walls during the year. There is also a small kutcha well to the south of the barracks, generally used by the dhobies, and a good, large, newly-built well in the hospital compound. The quality of the water was reported good in all the wells with the exception of that in No. 3, which was condemned, and the well recommended to be closed up. (I believe the analysis of the water was made before the well was completely finished.) I brought the Analyst's recommendation to the notice of the Commanding Officer, who ordered the water to be used only for bathing purposes. The quantity is abundant.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements in the barracks have been properly attended to, and there are no local causes of disease requiring removal.

Diet. *Diet.*—Provisions have been plentiful, and not dearer than they usually are in Tonghoo. Vegetables were abundant, except at the end of the hot weather and beginning of the rains.

The men receive rations from Government, but no compensation on account of dearness of provisions.

The rice received by the men in rations is not fit for food until it has been cleaned, in which process a considerable amount of waste takes place. The men complain frequently that the ghee they receive is bad; on one or two occasions it was so bad that it had to be changed, but this is only effected with considerable difficulty and trouble. The men generally supplement their rations by fish and goat-flesh, &c., so that their diet is sufficiently nutritive and varied.

Clothing. *Clothing.*—The men wear uniform when on duty and their native clothing off duty. The uniform for the hot months is a pair of thin black trousers and a white ungrika; for the cold weather thick black trousers and red tunic; these were changed to suit the climate without any recommendation from me. The men always wear their native dress under their regimental. The native dress does not afford sufficient protection against chills in the cold weather.

Foot-soreness. *Foot-soreness.*—The men wear boots of a European pattern when on duty except during the rainy months, when they wear sandals. The boots are usually made by natives, and are as well made as could be expected; but as scarcely any of the men wear stockings, and never wear boots when off duty, there have been numerous cases of foot-soreness.

When the case is slight the man is "excused boots" four days and returned to duty; when it is more severe he is admitted into hospital.

During the year 276 men were "excused boots" and 12 men admitted into hospital on account of foot-soreness.

Duty and exercises. *Duty and exercises.*—The usual parades and guards did not appear to have any injurious effect on the health of the men.

The average number of nights per week in bed have been 3·8.

Drill. *Drill.*—During the drill seasons there are usually drills morning and evening, except on Thursdays and Sundays, with occasional mid-day drills under the barracks. At other times there are occasional drills in the mornings. In the morning the parades are from 5-30 to 7 A.M. or from 6-30 to 7-30 A.M. according to the season. In the evening from 4-30 to 5-30 P.M. During this cold season running drill has been instituted for men under 15 years' service; it generally takes place at 9-30 A.M. and lasts, with breathing intervals, for a little over a quarter of an hour.

No recommendations have been made with respect to drills.

Sanitary condition of lock-up rooms and prison cells. *Sanitary condition of lock-up rooms and prison cells.*—The sanitary condition of the lock-up rooms has been satisfactory in every respect, consequently no recommendations have been made with respect to them.

Vaccination. *Vaccination.*—Vaccination is kept up in the regiment. In the commencement of the year 226 men were vaccinated. In October I vaccinated the only two children requiring it,

but the lymph did not take; as there are very few children in the regiment, it is difficult to keep up a supply of lymph.

Only one case of small-pox occurred in the person of one of the Hospital Assistants.

Diseases. *Diseases.*—Although cholera was epidemic in the town of Tonghoo, no cases occurred among the men.

Ague was prevalent during the months of January, July and August, November and beginning of December; in July and August alone 90 cases were admitted into hospital; in January, November, and first half of December 81 cases were admitted; these latter cases were slight, and appeared to be caused by the variations in temperature. During the remaining seven and-a-half months only 57 cases were admitted.

Dysentery prevailed during the months of July, August, and October; during these three months 68 cases were admitted. There were no admissions from dysentery during April, May, and June. During the remaining six months only 16 cases were admitted.

Diarrhœa was prevalent chiefly during July, when 31 cases were admitted; there were no admissions from this disease during February and March, and only 35 cases during the remaining nine months.

During July and August the whole country around the station is flooded, and dysentery, diarrhœa, and ague are prevalent among all the inhabitants.

Phthisis pulmonalis. *Phthisis pulmonalis.*—Three men were admitted under this head. In neither case could any hereditary tendency be traced.

Ventilation of the hospital. *Ventilation of the hospital.*—The ventilation of the hospital has been very good. I have had no representation to make respecting it.

Overcrowding. *Overcrowding.*—There has been no overcrowding in the hospital. As the details are treated in the Regimental Hospital, I have been compelled occasionally to use the infectious wards and the empty "servants' quarters," but I have been able by these means to prevent overcrowding.

Drainage and latrines. *Drainage and latrines.*—As the hospital is situated on raised ground and surrounded by a pucka drain, the drainage in its immediate vicinity is very good. To the west of the hospital there is a sort of old fort ditch, which is a swamp in the rains and for a considerable time after they have ceased. It could not be drained except at a considerable outlay. It does not appear to exercise any injurious effect on the health of patients in hospital.

The dry-earth system is carefully carried out in both of the hospital latrines.

Hospital water-supply. *Hospital water-supply.*—A large pucka well containing a plentiful supply of very good water was built in the hospital compound during the year. It is not intended to cover it in, nor has it yet had a platform built round it.

Cooking. *Cooking.*—There is one cook-room divided into two rooms, one for the Mussulmans, one for the Hindoos. A separate cook-room for the Brahmins and Rajpoots, who at present have to be permitted to cook out of hospital, is required. I brought this to the notice of the Engineer when he was building the cook-rooms, but he told me this was not a "caste" regiment, and therefore we must be satisfied with two rooms.

There have been no complaints as to the cooking of the hospital diets.

General conclusion. *General conclusion.*—On the whole the health of the men in this station for the year 1873 has, I think, been satisfactory. It was only during the monsoon and soon after its close that the admissions into hospital were excessive. The sickness then was due to climatic influences and not to any preventible causes.

As compared with last year, the admissions into hospital show a decrease of 191 cases, the daily average sick a decrease of 7·57 cases. During each year five men died in the station.

14th Regiment Native Infantry.

Station—Rangoon.

Arrived from Mangalore 31st January and 5th February 1871.

Average strength	697
Do. present	642
Admissions	405
Daily sick	21
Deaths in hospital	10
Do. out of hospital...	5
Pensioned	...
Sick leave	32

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Mangalore	36·18	1·56	·71	5·55	1·28
1871 ...	Rangoon	72·00	3·17	1·64	...	2·59
1872 ...	Do.	104·48	2·94	1·08	...	4·95
Average ...	.....	70·88	2·55	1·14	1·85	2·94
1873 ...	Rangoon	63·08	3·27	2·15	...	4·59

Surgeon-Major H. Mc E. Ross, M.D., has been in medical charge of this corps during the year, and reports as follows :—

Climate.—In Rangoon the rainy season commences about the middle of May and finishes about the end of October with occasional showers both before and after the dates specified. During the cold weather, from December to February, the mornings are very chilly and foggy—bronchitis and dysentery being then common. Immediately after the rains cease there is an increase in the number of admissions from ague. I consider Rangoon an exceedingly good station for the troops. Climate.

Marches.—None. Marches.

Sepoy huts.—The barracks are ten in number, and are situated facing the north ; they are elevated above the neighbourhood, and they are bounded on the north and west by strips of jungle which, however, do not in any way intercept the breeze. The great Dagan pagoda is situated on the east and the cantonment proper on the south. The water during the rains does not stand near the barracks; part of it is carried away and the remainder sinks into the soil. The position of the barracks I consider as one of the most healthy parts of the cantonment. Sepoy huts.

Each barrack is 160 feet long by 21 feet wide, and divided into four compartments by wooden partitions to height of wall-plate, with a centre door to each partition. There are 13 doors, 8 × 5 feet each, and 20 windows, 5 × 4 feet, in each barrack. The barracks are wooden buildings roofed with shingles ; they are raised 7 feet from the ground ; the space below is clean and level, and available for exercise for the men. There are four small rooms situated at the four corners projecting from the barrack into the verandah ; these rooms are 21 × 10 feet, with one door and four windows, and are occupied by the Native Officers. I consider the buildings occupied by the men as conducive to health.

Ventilation.—The ventilation by means of doors, windows, and ridge is quite sufficient ; there is also slight upper wall ventilation. The guard-room has two doors and three iron-barred windows ; the cells have each one door 7 × 4 feet and one window 4 × 4 feet. It is quite sufficient for ventilation. Ventilation.

No defects have been observed.

Nuisance.—None. Nuisance.

Water-supply.—An ample supply of drinking water of good quality is furnished by six wells situated in the immediate vicinity of the lines during the greater part of the year, but in the hot weather water can only be obtained from two wells ; the rest dry up. Water-supply.

Sanitary arrangements.—The sanitary state is satisfactory ; no cause of disease required removal. Sanitary arrangements.

Diet.—The Government rations were supplied to the men, and consists of rice, dholl, turmeric, ghee, salt, and tobacco ; they are of good quality ; the men provide themselves with extras, such as meat and vegetables. Sufficiently nutritive to preserve the health of the troops. No change advised. Diet.

Clothing.—The clothing of the men is sufficient: they wear woollen in the cold, and cotton in the hot season. Clothing.

Foot-soreness.—A few trifling cases of foot-sores have been admitted, probably due to the men wearing boots instead of chuppals, requiring no special remarks. Foot-soreness.

Duty and exercises.—Ordinary garrison duties, not interfering with the health of the men. Each man on an average has three nights in beds. Duty and exercises.

Drill.—During the rains the men are seldom drilled, but during the cold weather generally about four days in the week, in the morning from 6 to 7-30 and of an evening from 5 to 6-30. During the hot months the men are generally drilled of a morning. Drill.

It does not interfere with the health of the men. No recommendations made.

Sanitary condition of lock-up rooms.

Sanitary condition of lock-up rooms.—The guard-roomand cells are situated in a pucka building. The guard-room is 33 feet long by 15 feet broad and 16½ feet in height. It has two doors 4 × 7 feet each and three iron-barred windows 3 × 3 feet each. The strength of guard has been two non-commissioned officers and nine privates, giving an average cubic space of 730·9 feet.

There are three cells, with one door each, 4 × 7 feet, and one window, 3 × 3 feet, except the last cell, which has two windows, raised 7 feet from the ground. The length of each cell is 16½ feet, breadth 15 feet, and height 16½ feet.

No defects exist.

Vaccination.

Vaccination.—Vaccination has not been generally practised, the families of the men being in India. Recruits are vaccinated when enlisted. No cases of small-pox have occurred.

Diseases.

Diseases.—I consider the great number of cases of ague, dysentery, diarrhœa, bronchitis, and rheumatism due to the excessive humidity of the climate. Seventeen cases of diarrhœa occurred during the month of October; this was due (in a great measure) to the men exposing themselves at night during the Dassera festival; the symptoms in most of the cases were mild and easily controlled. During the year there have been 56 admissions from ague, 26 for dysentery, 46 for diarrhœa, 35 for bronchitis, and 25 for rheumatism. Eleven deaths have occurred among the men at the station, three from general dropsy, one being complicated with heart disease, one from ague, one from rheumatism, one from bronchitis, two from diarrhœa, one from colic, one from general debility, and one from accidental drowning.

Phthisis pulmonalis.

Phthisis pulmonalis.—There has been 35 admissions from bronchitis, most of these cases occurred during the cold months of the year, and due probably to the men exposing themselves without being properly clothed. No cases of phthisis pulmonalis have occurred.

Ventilation of the hospital.

Ventiiation of the hospital.—The hospital like the barrack is a wooden shingled roof building raised six feet from the ground. The ventilation is good. The hospital is provided with six doors, 8 × 5 feet each, and 21 windows, 5 × 5 feet each. There is a small space for upper wall ventilation. The hospital accommodates 24 cots conveniently; if the number is in excess of this, they are accommodated in the space below, the sides being closed in with gunny purdahs.

Overcrowding.

Overcrowding.—There has been no overcrowding.

Drainage and latrines.

Drainage and latrines.—Drainage imperfect. The latrine is a small pucka building to the north of the hospital. Coal-tar and dry earth are fairly used, and the excreta removed nightly by conservancy carts.

No defects exist.

Hospital water-supply.

Hospital water-supply.—Water-supply good and abundant. It is supplied as required by regimental puckallies.

General conclusions.

General conclusions.—The sanitary state of the regiment is good. The average daily sick for the year is 21·071, the maximum being 67 and the minimum 13. Ten deaths occurred amongst the privates in hospital, 3 being from general dropsy, ague 1, rheumatism 1, bronchitis 1, diarrhœa 2, colic 1, and general debility 1. Five deaths occurred out of hospital, 1 from accidental drowning, 3 bronchitis, and 1 from diarrhœa.

Thirty-two men were transferred to the coast on sick certificate: ague 1, rheumatism 4, dropsy 2, bronchitis 10, dysentery 9, skin disease 1, ulcer 1, general debility 3, and 1 from chronic synovitis.

This corps was inspected by Deputy Surgeon-General Duff on the 20th November 1873, who reports as follows:—

Barracks.

Barracks.—Although the ground-plan of the barracks and hospital of the native regiment at Rangoon may have been years ago lodged in the office of the Surgeon-General, I have thought it desirable to give a rough sketch of the area in which the different buildings forming the barracks of the corps stands, so that a ready reference may be made to the relative position, &c., of each structure as they are described in this report.

The barracks are situated on an open piece of ground to the north-west of the area forming the cantonment of the station. This space is bounded on the east by the Shwedagon Pagoda and the plain at its base; on the west by a piece of jungle land covered with some fine trees and by the regimental bazaar; on the north by a fringe of large trees and jungle and by an earthen bund formerly a part of the native fortifications of the place; and on the south by one of the principal roads of the cantonment.

The barracks are composed of ten blocks of wooden structures raised on piles about 8 feet from the ground. These blocks are all alike; they are arranged in a single row, and are about 22 feet apart. Each block consists of one large centre room divided by wooden partitions into four equal parts; there is at each corner of the block a small room 20 feet by 10 feet. Two are occupied by native commissioned officers and two by native non-commissioned officers. Between the side corner rooms a verandah is formed, which completes the rectangular block. The roofs of all are of shingles.

The sanitary condition of the barracks as a whole is very satisfactory. The buildings are kept scrupulously clean. The area below each is kept open and utilized during the monsoon as a drying place for the bedding and clothing of the men.

The ventilation is by doors and windows and by ridge roof openings.

The lighting is by the doors and windows during the day, and by lamps suspended from the ceiling at night.

Each of the ten blocks is 160 feet long by 21 feet wide, divided into four equal compartments by wooden partitions, with a small room at each corner, 21 × 10 feet, with 1 door 7 × 4 feet and four windows 5 × 4 feet each. There are 13 doors 8 × 5 feet and 20 windows 5 × 4 feet in each block. The cubic space of each block is 668 feet, giving a superficial area per man of 38 feet, capable of receiving 88 men.

The drainage throughout is by open surface drains leading into roadside drains, which carry the storm-water into the river. The ground is level, but no stagnation of water occurs.

There are no "lines" to native barracks in Burmah.

Sanitary condition of all buildings.

Sanitary condition of all buildings.—The sanitary condition of the latrines, guard-room, prison cells, store-rooms, &c., is good. There are no cess-pools or drains connected with the latrines. The excreta are conveyed to a considerable distance and buried. The dry-earth system is carefully carried out, and coal-tar is freely used in the latrines and urinaries.

Conservancy of the neighbourhood.

Conservancy of the neighbourhood.—The neighbourhood of the barracks and station is well conserved. That of the cantonment is being improved by the application of Cantonment Rules to every house, which necessitate the removal and prompt burial of all night-soil by conservancy servants, which is conveyed to a distance from all human dwellings.

Hospital.

Hospital.—The hospital and neighbourhood are well conserved. The hospital is kept neat and clean. The drainage is by shallow superficial drains, which carry off the storm water into large roadside drains. The ground is a dead level, but from its sandy and porous nature, no water stagnates for any length of time near it.

The hospital ward is 120 feet long by 20 feet wide and 12 feet high from floor to wall-plate. It has 6 doors 8 × 5 feet and 21 windows 5 × 4 feet each. There are four corner rooms to the hospital, each 20 feet by 10 feet, with a verandah between the corner rooms on each side. One is used as a surgery, the other three as quarters for the Hospital Assistants.

The ventilation is by the doors and windows and by openings all round the wall-plates. The roof is covered with shingles, and is in good order. In hospital the cubic space is 1,500 feet and the superficial area 100 feet per man, allowing 24 men to the ward.

The water-supply is good and abundant. It is brought by bheesties to the bath-room, the cook-room, and hospital. The latrine is in very good order. The dry-earth system carefully carried out; the poudrette removed to the same spot in the jungle as that from the regimental latrine and there buried. The cook-room is clean and in good repair.

77th Regiment Native Infantry.

Station—Moulmein.

Arrived from Bangalore 5th March 1872.

Average strength	585
Do. present	569
Admissions	1,085
Daily sick	28
Deaths in hospital	5
Do. out of hospital	13
Pensioned	1
Sick leave	21

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Bangalore	47·30	1·60	·58	2·62	2·32
1871	Do.	71·21	2·27	·58	2·58	2·00
1872	Moulmein	220·94	8·16	5·53	...	13·43
Average	.....	113·15	4·01	2·23	1·73	5·91
1873	Moulmein	190·68	4·92	3·07	·17	3·58

Surgeon P. R. Martin, M.D., has been in medical charge of this corps during the year, and reports as follows :—

Climate. *Climate.*—The rainfall has been a little in excess of the previous year as well as of the average quantity, a circumstance which was favorable as promoting the growth of the crops and producing a plentiful harvest. The health of the district did not seem to be affected prejudicially by this slight variation. There was no epidemic during the year.

The town and station of Moulmein are situated in the fork of an estuary which the river Salveen forms with the Gulf of Martaban. To the west the prospect is made up of a large island and numerous small ones; the latter at least, having been formed by the alluvial deposits carried down by the river, are covered with exuberant vegetation, and present a most picturesque appearance. The Martaban Hills are on the north-west, rising to a height of about 1,000 feet, clothed to a summit with forest trees and jungle. Directly north is a large expanse of water formed by the junction of the rivers Salveen, Ghyne, and Atteran. This area is studded with islands of various sizes formed by river deposits and the most rich soil capable of maintaining permanently a luxuriant crop of vegetation; these features, with the other accessaries of mountain and river, present a piece of extremely pretty scenery. Towards the east country is a flat plain traversed by the large rivers Atteran and Ghyne. The view is limited in this direction by a range of lofty hills, the Shan mountains; concentric to this zone a broken chain of rugged hills appear. The Salveen runs north and south, is a large tidal river, and navigable for over 60 miles from the sea.

Geology. *Geology.*—The soil is alluvial, consisting of a fine salty clay, the lower stratum being composed of a bed of laterite. The mountains are of limestone formation, and some of the low hills of coarse, red sand-stone. The district is well drained by the three large rivers above mentioned, and marshes do not exist. The aspect of the country is green at all seasons, large and handsome trees with jungle being abundant, and in the rainy season the vegetation is excessively luxuriant. The chief productions of the district are rice, cotton, sugar-cane, and most of the ordinary vegetables of other countries. Teak-wood, which is the principal article of export, is still abundant on the mountains in the interior, while other woods of scarcely less value, such as the Mesua ferrea, Padouk (Pterocarpus Indica), Thingan Hopea odorata, Lagerstrœmia Nobilis (Peemah) are indigenous. The jungle is principally composed of the Grewia with the Croton, the Bignonia stipulata, several species of Cassia and a few varieties of Bauhinia, the Amherstia, Ficus religiosa, Cashew (Anacardum occidentale), Artocarpus integrifolia (jack-fruit) and orchids and ferns of various and probably several unknown varieties.

The station is situated in latitude 16° 24″ north and longitude 97° 28″ east; and, though about seven miles from the sea by the nearest line, it may be considered a sea-port town. The station and inland plain with regard to elevation are about sea-level. The barracks, however, are built on the lower slope of a hill which, running north and south and parallel with the river Salveen, separates the cantonment from the interior. The site is eminently favorable for surface-drainage by the storm-waters in the monsoon, while the hill affords shelter from the cold and malarial north-east winds in the dry season, and its westerly aspect confers the advantage of being open to the sea-breeze. It is situated in the force of the winds of the south-west monsoon, which, coming laden with vapor from the Bay of Bengal, impinge against the hills and lofty mountains of the interior, where their temperature is lowered by mingling with the colder atmosphere of those elevated regions, an excessive rain-fall being the result which lasts from May to about the beginning of November. In consequence of its geographical situation no rain, of course, falls during the north-west monsoon, and dry harsh wind prevails throughout that season. The interior consists of an extensive generally level plain, the greater part of which is under paddy cultivation, the remainder being occupied by jungles. The soil is alluvial and extremely moist during the wet season both by the rains and the waters of the Ghyne river, which overflows its banks. The ground is then covered with exuberant vegetation. In the cold season the plain is generally dry, but water is not far from the surface. These conditions giving rise to the production of malaria, intermittent fever prevails to almost an equal extent throughout the year, but is always in the form of quotidian ague; the attacks, lasting generally a few hours, are easily amenable to treatment, and always get well without change of climate. Rheumatism chronic comes next to ague in number of admissions, but is the most unsatisfactory of all in regard to treatment; it is generally attended with loss of motor power and impaired sensation in the extremities. Dysentery comes next in number and importance. The disease is probably caused by the same conditions that produce rheumatism, acting on a different constitution. It has always been amenable to treatment, and has never required a change of climate for its cure. Burmese ring-worm is the fourth disease, attributed to the climate and situation of the station. The latter affection is said to be rather prevalent, but as it generally does not inconvenience men in the performance of their duty, for instance native followers and bearers, the number of admissions thereby is not notably large.

Marches. *Marches.*—A detachment of the right wing, consisting of 192 men, left Akyab on the 19th February last and arrived here on the 26th idem. They were under the medical charge of Assistant Surgeon Fawcett, and I believe no noteworthy circumstance relative to their health occurred during the passage.

Ventilation and drainage.—The ventilation and drainage of the barrack-rooms, &c., are satisfactory. Ventilation and drainage.

Nuisance.—None, except that the old latrine which is now abandoned (a new one on the dry-earth system being now used instead) is still standing, but means to have it removed I believe are in progress. Nuisance.

Water-supply.—The water is obtained from seven covered wells in the lines, and has been satisfactory as to the quality and amount. No recommendations were called for regarding it. Water-supply.

Sanitary arrangements.—Sanitary arrangements have been properly attended to; there has been no local cause of disease. Sanitary arrangements.

Diet.—Provisions are always dear in this station in comparison with the price they can be obtained for in Indian stations; vegetables are always dear. Troops in this country receive Commissariat rations. Diet.

The daily ration consists of rice, dholl, ghee, turmeric, and salt. The quantity is sufficient. The diet is never varied, but it is understood that some of the men obtain vegetables, fish, spices, meat, &c., at their own expense, and it is observed that those are in better health than the men who trust to the rations alone, probably with the view of saving money.

Clothing.—The military clothing is always varied to suit the climate and period of the year. But the civilian clothing which the men wear off-duty is seldom adapted by them to meet the requirements of the variable temperature of this climate, and the result is often that they suffer from rheumatism, fever, cough, &c. Clothing.

Foot-soreness.—The men sometimes suffer from shoe-bites, but not to any great extent; in such cases they are excused from wearing boots until the sore is healed. Foot-soreness

Duty and exercises.—The duties consist only of the ordinary parade and drill and regimental guards. The men have no duties to perform nor guard to furnish, except those connected with the regiment. The duties do not affect their health injuriously. (A guard of three men is furnished to the Commissariat Store.) Duty and exercises.

Drill.—In the monsoon there is morning parade only for the whole wing five days in the week when the weather is favorable, and drill for the recruits morning and evening. In the cold season there is a parade every morning excepting Thursdays and Sundays, with an occasional evening parade for the wing, and drill for the recruits twice a day excepting on Thursdays and Saturdays, when they are drilled once a day. The hour for parade in the morning is from quarter to six to about quarter to seven o'clock, and in the evening generally from five to six o'clock. They are not too severe. No recommendations were necessary regarding them. Drill.

Lock-up rooms and prison cells.—The sanitary condition of the guard-rooms and cells is satisfactory as regards cubic space, ventilation, and cleanliness. Lock-up rooms and prison cells.

Vaccination.—Vaccination was carried on in the beginning of the year during the dry season. A large number of recruits having joined recently, vaccination will again be commenced and carried on during the cold season. No case of small-pox has appeared during the year. Vaccination.

Diseases.—Cholera prevailed to a great extent in the jail, which is situated on the confines of the cantonment and not far from the barracks, but did not, however, appear in the lines. The disease was also prevalent in the two centres of population on both sides of the cantonment. None of the diseases mentioned were epidemic amongst the men. Ague is of course epidemic, but is of a mild form. Diseases.

Phthisis pulmonalis.—There has not been any case of phthisis. The cases of bronchitis and asthma, which comparatively have not been numerous, may be attributed to the ordinary causes of cold and exposure. Phthisis pulmonalis.

Ventilation of the hospital.—The ventilation has been quite satisfactory, and no representation on the subject was demanded. Ventilation of the hospital.

Overcrowding.—There was no overcrowding. Overcrowding.

Drainage and latrines.—Drains have been constructed round the hospital, kitchen, and latrine, which efficiently carry off and prevent the lodgment of any water in the place. The sanitary condition of the latrines has been satisfactory; the dry-earth system is properly carried out. Drainage and latrines.

Hospital water-supply.—The water used in the hospital is obtained from the covered wells in the lines, is abundant, and considered of good quality. Hospital water-supply.

General conclusion.—Sixteen men were transferred to Rangoon for sick leave to India. Their diseases were anæmia, rheumatism (chronic), dyspepsia, general debility, ague, and congestion of spleen. The largest number of admissions comes under ague 180, for rheumatism (chronic) 48, for dysentery 46. Most of the cases of ague were mild, being caused generally by a check to the evaporation from the skin and lungs, and consequent rise of the temperature of the body produced by cold and great humidity, a state of weather which frequently occurs during the rains, while a similar effect, but more severe, is produced in the dry season by almost a quite different state of weather, that of cold, dry, and malarial winds blowing from the interior chilling the body if insufficiently protected, and irritating the lungs, causing bronchial complaints also. The production of dysentery and chronic rheumatism chiefly General conclusion.

depend on these climatic peculiarities, and some of the cases under other headings in which the symptoms of œdema of the legs, co-existent with albumenous urine, were observed, seemed to have been caused by a sudden chill of the body, often from nightly exposure. This latter class, as well as the ordinary forms of chronic rheumatism, are usually accompanied from the outset by cutaneous anæsthesia, partial or complete (legs often by hyperæsthesia), of parts and partial impairment of the functions of the motor nerves of the extremities. This affection in its severest form has appeared amongst the men who came from Bangalore direct to this station and had not previously suffered from malarial fever, at least to any immoderate extent, as well as in those who served in Arakan and had suffered from fever and other diseases prevalent in that climate, a fact which will discredit anything of the above-mentioned symptoms being the usual result of malaria long retained in the system. Their cause is of local as well as of wide existence in this climate, and may be attributed to those peculiarities of the weather above specified.

Diet. *Diet.*—The symptoms of anæmia, dyspepsia, general malaise, and muscular weakness, which often occur amongst the men, would seem to be produced by some defect in the food, not in regard to quantity or quality, but probably from a deficiency of albumenates and excess of starch, the want of a due amount of the former being felt when a man has to undergo a more than usual amount of active exercise. Meat and vegetables being so expensive here, most of the men content themselves with the Government rations, so that the daily diet is wanting both in variety and probably in nitrogenous principles and the vegetable acids, by which the alkalies may be neutralized and carbonates formed in the blood, principles which it seems to me are often demanded by the system. If the plan were feasible of encouraging the men to grow vegetables with the aid of the soil obtained from the latrine in which the dry-earth system is used, it would be of much benefit to them as both supplying an important addition to their food and creating a new interest and diversion for them when off-duty. In general it may be said that the men have improved somewhat since their arrival from Akyab, but several have not yet shaken off the predisposition to ague and rheumatism which that climate induced in their system. The number of cases of ague in this regiment during the year was nearly three times that which occurred in the 39th Regiment in proportion to strength, and rheumatism also gave a large excess over the same disease in the 39th Regiment. This difference in the number of cases of the same diseases occurring amongst two regiments living under similar circumstances during nearly the whole of the year is obviously the result of the evil climatic influences to which the 27th Wing was exposed in Arakan.

Deputy Surgeon-General Duff inspected this corps on the 8th December 1873, and reports as follows:—

Barracks. *Barracks.*—The accompanying ground-plan gives a good idea of the relative position and dimensions of the various buildings which form the military barracks and hospital of this station. The ground on which they stand is on the slope of a hill-side, having a gradient of about one in thirty.

The structures are all of wood, raised on an average five feet from the ground, and roofed with shingles. The arrangements throughout are good, and from the natural configuration of the ground the drainage of storm-water is perfect.

The floors of the barrack-rooms are washed once a fortnight and swept daily. They are always kept clean.

Ventilation is effected by doors and windows at the sides, and at both ends of each barrack directly opposite each other. There are eight doors on each side and one at each end. There are sixteen windows on each side. The barrack accommodation consists of eight blocks lying east and west parallel to each other. Three of these are occupied by the 27th Regiment, four by the wing of the 39th, and one block is occupied by the drummers of both regiments with their families. This block is divided into 22 compartments of equal dimensions, each room being about 10 feet square. Each of the other barracks consists of one long room; there are two small rooms at each end for the accommodation of the Native Officers. They are furnished each with two windows; the door opens into the common room. The blocks are built of wood with shingled roofs, and supported on piles on an average about five feet from the ground; they are 50 feet apart. On an average 119 men are accommodated in each barrack.

Lighting during the day by doors and windows, and at night by three night-lights in each barrack.

Each barrack has a cubic space of 60,016 feet and 4,800 feet of superficial area.

Drainage of barracks and immediate neighbourhood is effected by natural channels aided by a sloping situation, while artificial drains are constructed round each building.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—The sanitary condition of all the buildings is satisfactory with the exception of the cook-room of the 39th and the old latrine, both of which have been recommended, the latter to be removed and the former to be rebuilt.

A new latrine has been built and brought into use; its sanitary condition is satisfactory. The guard-rooms are in a good sanitary state. There are no schools or reading-rooms. The solitary cells are sufficiently roomy, but are defective in ventilation. There are no cess-pools

or foul drains connected with the latrine. The excreta are conveyed to a distance and buried in trenches made for the purpose. The dry-earth system of conservancy is effectually carried out. Coal-tar is freely used.

Conservancy of the neighbourhood.—The conservancy of the neighbourhood of the barracks and station has been satisfactory. No suggestions for improvements were necessary. Conservancy of the neighbourhood.

Hospital.—The position of the hospital is well shown on the plan. The hospitals (two) are kept clean; the floors are washed once every fortnight and swept daily. The walls have been white-washed a few weeks ago. The neighbourhood is kept clean. Drainage is effected both by surface channels aided by a sloping situation and by artificial drains constructed round the buildings. Ventilation is effectually accomplished by means of doors and windows on each side of the buildings with a door at each end. The number of doors in each building is eight, number of windows 18, not including the surgery and office rooms, bathing and store rooms, two of which are furnished with two windows each, and the other two with three windows each. Hospital.

Each hospital is partly divided into three compartments of equal dimensions, while at one end are the surgery and office rooms, separated by a small verandah for the hospital guard, and at other (the rear end) the bathing and store rooms.

The cubic area for the accommodation of the sick in each building is 33,726 cubic feet, the superficial space is 2,750 feet. The average cubic space of each man during the year 2,498 feet, while the average superficial space during the same period was 203·7 feet.

The water is obtained from the wells in the lines.

The sanitary condition of the hospital and neighbourhood is satisfactory.

BENGAL.

The only regiment stationed in Bengal during the year is the 33rd Madras Native Infantry. The statistical and sanitary details of this corps are as follows :—

33rd Regiment Native Infantry.

STATION—DORUNDAH.

Arrived from Vizianagrum 30th December 1871.

Average strength	714
Do. present	679
Admissions	142
Daily sick	6
Deaths in hospital	5
Do. out of hospital...	2
Pensioned	24
Sick leave	...

The following return shows the rates of sickness deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Vizianagrum	10·68	1·55	1·18	1·78	1·48
1871 ...	Dorundah	19·77	·83	1·24	...	...
1872 ...	Do.	22·57	·90	1·15	...	...
Average ...	.....	17·67	1·09	1·18	·59	·49
1873 ...	Dorundah	20·91	·88	·98	3·36	...

Surgeon D. J. McCarthy, M.D., has been in medical charge of this corps during the year, and reports as follows :—

Climate. *Climate.*—I consider that the climate of the station during the past year has been healthy. The temperature during the hot season has been above that of the preceding year and the rainfall below the average. The climate has exercised no prejudicial effects on the health of the troops.

Medical topography. *Medical topography.*—The station is bounded on the north and south by two rivers and east and west by land used for grazing purposes and land under dry cultivation. Intermittent fever and rheumatism are the prevalent diseases of the district; they are chiefly prevalent at the close of the rainy season.

Marches. *Marches.*—The regiment has not been on the march or on shipboard during the year.

Sepoys' huts. *Sepoys' huts.*—The sepoy hutting lines are situated on open ground at the eastern extremity of the cantonment, bounded by two rivers on the north and south, by the officers' houses on the west, and on the east by open ground used for brigade exercise. The position of the lines is healthy.

The general construction of the sepoys' huts are such as the men have always been accustomed to and such as obtain at all cantonments for native troops.

Ventilation. *Ventilation.*—The sepoys' huts are kept clean, and the ventilation is as good as their construction admits of.

Water-supply. *Water-supply.*—There has been an abundant supply of water of good quality procured from several wells.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary arrangements have been carefully attended to. No local cause of disease exists.

Diet. *Diet.*—The bazaar supplies have consisted of rice, fowls, mutton, and vegetables of fair quality. There has been a considerable advance in the price of rice in the last three months owing to the deficiency of rainfall. Other provisions remained moderate in price. The troops received an average monthly compensation of Rupee 1-7-9 on account of the dearness of rice.

The diet of the sepoys has been sufficiently nutritive and varied to keep them in good health.

Clothing. *Clothing.*—The clothing has been sufficient and adapted to the climate. No recommendation for a change has been necessary.

Foot-soreness. *Foot-soreness.*—The sepoys have suffered in many cases from shoe-bite or blistered feet, but they very rarely require treatment in hospital. They are excused from wearing boots until the blister heals.

Duty and exercises. *Duty and exercises.*—The duty performed by the troops has been that usually performed by native troops in garrison, and was in no way prejudicial to health. Average number of nights in bed 6¾.

Drill. *Drill.*—There have been on an average four parades every week during the drill season, usually between the hours of 6 and 8 A.M. They have not exercised any injurious influence on the health of the men.

Lock-up rooms and prison cells. *Lock-up rooms and prison cells.*—The sanitary condition of the solitary cells has been good. There have been no defects injurious to the health of the prisoners which required recommendation to be made.

Vaccination. *Vaccination.*—Vaccination has been carefully kept up during the year. 324 cases have been vaccinated, of which 297 have been successful and 27 unsuccessful. There have been five cases of small-pox admitted into hospital; they were of a modified form, and no fatal cases occurred. The disease has also occurred amongst the females of the sepoys, not generally of a severe nature.

Diseases. *Diseases.*—There has been no epidemic disease during the year; the principal disease causing admission into hospital has been intermittent fever, which has risen from 42 cases in the preceding year to 87 in the present. No local cause can probably be assigned for the increase of the disease, as it has been increasingly prevalent over the entire of this extensive district.

Phthisis pulmonalis. *Phthisis pulmonalis* is a rare disease amongst the sepoys of the regiment. No case has occurred during the year.

Ventilation of the hospital. *Ventilation of the hospital.*—The hospital is large and the accommodation is most ample, the ventilation, ridge and by doors and windows, is very free and good. No recommendations have been required.

Overcrowding. *Overcrowding.*—There has been no overcrowding.

Drainage and latrines. *Drainage and latrines.*—The hospital latrine is kept very clean, and the building is in a good state of repair; the dry-earth system is carefully carried out. Coal-tar is used as often as required.

Hospital water-supply. *Hospital water-supply.*—The water-supply is abundant and of good quality. It is brought from the wells by a puckally.

General conclusion. *General conclusion.*—The health of the regiment has been good during the past year, the admissions being 142, showing a decrease of 7 from the preceding year. Intermittent

fever and rheumatism have been the most prevalent. There has been a considerable increase in the number of admissions from intermittent fever; some of the cases were of a severe nature, but in general they were of a mild type and yielded readily to treatment. There have been seven deaths during the year—five in hospital (four from intermittent fever and one from bronchitis), and two deaths out of hospital (one in the regimental lines from mitral valve disease and one on furlough from chronic rheumatism). Five cases of small-pox were admitted into hospital, none of which were fatal. There have been also some cases amongst the families of the sepoys. The disease was generally of a modified form, and not of a severe nature.

SAUGOR DIVISION.

Average strength	3,404
Do. present	3,244
Total admissions	3,255
Daily sick	119
Deaths in hospital	14
Do. out of hospital	8
Pensioned	80
Sick leave	55

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Year.	Rate per Cent. of				
	Average Strength Present.		Average Strength.		
	Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	104·19	3·70	1·73	2·60	1·36
1871	101·22	3·83	·75	1·07	·68
1872	65·70	2·33	1·25	1·43	·95
Average	90·37	3·28	1·24	1·70	·99
1873	100·33	3·66	·64	2·35	1·61

The following corps were serving in the division on the 31st of December 1873:—

3rd Regiment Light Cavalry.
5th do. Native Infantry.
11th do. do.
20th do. do.
16th do. do.
15th do. do. (Wing.)

The troops in this circle are under the administrative charge of the Deputy Inspector-General of the Bengal Service, who does not submit any annual reports to this office as to the results of his inspection of the Madras Corps.

3rd Regiment Light Cavalry.

Station—Saugor.

Arrived from Kamptee 9th January 1869.

Average strength	296
Do. present	261
Admissions	161
Daily sick	4
Deaths in hospital	4
Do. out of hospital	1
Pensioned	2
Sick leave	2

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Saugor	140·00	4·63	1·05	2·10	1·75
1871 ...	Do.	84·61	2·56	·69	2·09	1·39
1872 ...	Do.	73·23	2·23	1·44	1·08	·36
Average ...	.....	99·28	3·14	1·06	1·75	1·16
1873 ...	Saugor	61·68	1·53	1·68	·67	·67

Surgeon-Major C. Cooper, M.D., F.R.C.S., has been in medical charge of this corps during the year, and reports as follows :—

Climate. *Climate.*—The extreme ranges of the thermometer during 1873 were 108° to 29°. The alterations are at times very sudden; the rainfall was below the average, but the seasons have not been such as to exercise any peculiar influence on health or disease.

Marches. *Marches.*—The regiment has not marched.

Sepoy huts. *Sepoy huts.*—The lines are to the north-east of the station on elevated sloping ground, the position well chosen and healthy; they are sheltered from the east wind by the hill behind them. The huts originally built for the Bengal Irregular Cavalry are rather small and ill-ventilated, but there are enough of them, and there is no overcrowding. In front of each is a yard enclosed by bamboo tatties. The rows are separated by broad spaces in the rear, and in these spaces the horses are picketed.

Guard-room. *Guard-room.*—The ventilation of the guard-room is good. The drainage of all is naturally good. In the dry season large earthenware vessels ("gumlahs") are let into the drains in front of each hut to receive the waste and refuse water and prevent it from soaking into the porous black soil. The contents are removed twice a day. In the rains these are removed and the holes filled up, the flow of water then being quite sufficient to carry off all impurities. For facility in cleaning these out, one gumlah is let into another so as to be easily raised, emptied, and replaced.

Nuisance. *Nuisance.*—None. Any negligence, temporarily, of the sweepers, on being brought to the notice of the Officer Commanding, has been promptly remedied.

Water-supply. *Water-supply.*—The water is derived from wells; it is hard, but sweet and sufficient for all purposes at all seasons.

Sanitary arrangements. *Sanitary arrangements.*—There are no local causes of disease requiring removal.

Diet. *Diet.*—Provisions have been cheap and abundant. Vegetables are plentiful throughout the cold season. Compensation for dearness of rice is given, and amounted, on the average for the year, to Rupees 2-10-2 per man per mensem.

Rice, 12 seers per rupee.	Ghee, 2 seers per rupee.
Wheat, 16 seers ,,	Mutton, 8 ,, ,,
Dholl, 14 ,, ,,	Beef, 16 ,, ,,

Clothing. *Clothing.*—The uniform is varied according to the season. Cases of shoe-bite have been less frequent. Boots are made under regimental arrangements from Cawnpore leather, and each man is measured. In undress in hot weather the ungurkah is worn, and in the cold weather a quilted cotton "dugla."

Duty and exercise. *Duty and exercise.*—The usual regimental and brigade parades and guard duties. The duties have not exercised any injurious influence on the health of the men. The average number of nights in bed at head-quarters was 5·89; the average number of nights in bed on detachment at Jubbulpore 4·09.

Drill. *Drill.*—Stables every day for two hours. Three parades per week of one hour's duration each. The above have not exercised any injurious influence on the health. No recommendations were required.

Vaccination. *Vaccination.*—There were 134 vaccinations during the year, successful 89, unsuccessful 45. Every one in the regiment and in the families is now protected by vaccination. There has not been a case of small-pox.

Diseases. *Diseases.*—Fever of mild intermittent type was prevalent in the months of September, October, and November, when the country was drying up after the rains, and is no doubt of miasmatic origin. There are extensive jungles in the neighbouring country. One death out of hospital from phthisis at Bellary while on sick leave, cause unknown: no history of hereditary tendency.

Ventilation.—Good. There has been no overcrowding. Ventilation.

Drainage and latrines.—Drainage good. The dry-earth system is carried out. In the private latrines in the yards of the married men's huts the quantity of dry earth stored is sufficient. The soil is removed twice daily and buried in trenches 400 to 500 yards away. Drainage and latrines.

Hospital water-supply.—Good and sufficient. Hospital water-supply.

General conclusions.—That the year has been in no way remarkable, but on the whole rather more healthy than the two previous years. General conclusions.

5th Regiment Native Infantry.

Station—Saugor.

Arrived from Secunderabad 10th January 1873.

Average strength	698
Do. present	688
Admissions	737
Daily sick	19
Deaths in hospital	2
Do. out of hospital	2
Pensioned	20
Sick leave	6

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Secunderabad...	66·09	1·84	·99	1·13	...
1871 ...	Do.	39·33	1·29	·86	2·44	1·58
1872 ...	Do.	53·45	2·30	1·58	3·45	·86
Average ...	.....	52·95	1·81	1·14	2·34	·81
1873 ...	Saugor...	107·12	2·76	·57	2·86	·85

Surgeon-Major A. A. Renton was in charge of this corps, and reports as follows :—

Marches.—The head-quarters and left wing of the 5th Regiment, M. N. I., arrived in Saugor on the 10th of January, after a ten-days' march from Jubbulpore. The right wing of the regiment came in on the 27th of the same month, having marched from Secunderabad to Goolburgah, and by rail from that place to Jubbulpore. Nothing worthy of note occurred on the march ; the men were healthy, and there was no serious case of sickness. Marches.

The regiment now occupies the Sudder lines, situated near the Sudder Bazaar.

Topography.—The lines are situated on a plain lying lower than most other parts of the cantonment. The soil is black cotton, which is hard and fissured in the dry weather, and in the rains becomes saturated with moisture, and swampy. Topography.

Climate.—The climate was cold and trying to the sepoys on their arrival in January, the thermometer in that month frequently standing as low as 44° in the shade. Climate.

The weather in May and June was very hot, the thermometer being often 100° in the shade. The rains commenced about the middle of June and ended near the end of September. According to the register the fall of rain in 1873 has been considerably less than in the two previous years. In 1871 67, in 1872 45, and in 1873 only 40 inches of rain fell. However, it is stated that the fall of rain has been more than usually well distributed over the months when it was most required, so that the crops have not suffered from the comparative scarcity of water.

Lines.—The Privates' houses in the lines are low and unventilated, and so small that it is difficult to understand how the married men and their families manage to crowd into such confined dwellings. They are only ventilated through the door and by any openings there may be between the walls and the roofs. Lines.

The walls of the houses are made of stone, mud, and wattle, which do not withstand well the influence of the heavy rains, and they frequently crumble away in many places.

The houses of the Privates are all of one size. Those of the Native Commissioned and Non-Commissioned Officers are more commodious, according to the rank of the occupant.

—	Length.	Breadth.	Height.
Subadar's house	27	20	8½
Jemadar's do.	26	13	7
Havildar's do.	15	8½	6
Private's do.	10	9	5

There are eight rows of lines running from east to west for the eight companies of the regiment, also one row for the Bandsmen and Drummers.

The quarter-guard and bells-of-arms are to the west of, and immediately outside, the lines facing them.

Drainage. *Drainage.*—Drains run down on both sides of each company's line as far as the quarter-guard. Beyond this the land lies low, and drainage would be a matter of difficulty and expense. However, this locality was so swampy during the last rains that some means will be adopted to carry off the water when the wet weather commences.

Conservancy and latrines. *Conservancy and latrines.*—The lines are kept in good order and clean; all refuse is removed by means of sweepers and carts. One sweeper is attached to each company, whose duty it is to carry off all sewage, waste water, &c., in bags and baskets. The heavier refuse is taken away by two carts, morning and evening. Each man in the regiment pays a certain sum according to rank towards the support of the conservancy. A Private pays 1 anna per month, Naigue 1 anna 6 pie, Havildar 2 annas, the Subadars pay 10 annas.

There is a latrine for each wing of the regiment, situated outside the lines, at a short distance off; each latrine has a dry-earth shed attached to it, with two sweepers. The dry-earth system is carefully carried out. The poudrette is taken away to some distance and buried in trenches one foot in depth by one in breadth. This ground is afterwards cultivated.

Water-supply. *Water-supply.*—A plentiful supply of good water can be obtained from wells in the vicinity of the lines for the greater part of the year. For two months in the hot weather the supply is limited, but with a little difficulty water can be obtained from wells somewhat more distant.

Diet. *Diet.*—Bazaar supplies are abundant, particularly all sorts of native vegetables. The price of wheat, rice, and gram has been steadily increasing for several months. On first arrival the price of rice was 17 seers for a rupee, now it is only 11 seers. The sepoys get rice-money, which does not, however, meet the rise in price of that grain. Meat is also easily procured and is cheap.

Clothing. *Clothing.*—The clothing of the men is of the same description as that issued to the other Native Infantry Regiments in the Madras Presidency. Many of the men appear to suffer from the cold in the months of January and December, and wear woollen shirts, drawers, and socks supplied at their own cost.

Duty and employment. *Duty and employment.*—The duty the men have had to perform has not been excessive in any way. The ordinary parades and drills, however, are beyond the strength of a considerable number of the sepoys who have become weakened by frequent attacks of ague, and it constantly occurs that a number of them fall out when called upon to "double." In the present cold months, the night-sentry duty appears to have a depressing effect on their health, as many come direct to hospital from guard with feverish symptoms.

Hospital. *Hospital.*—The hospital is a most inconveniently-situated building, at the extreme end of the cantonment, distant more than a mile from the lines by the road, and far removed from all the houses of the officers of the regiment.

It is a long, low building, partially divided into three rooms (the doorways between them having no doors), and is capable of containing 54 sick. It is built on a level with the ground with 8 windows and 16 shutters, opening only six inches above the beds of the men. At one end of the building there are two rooms, one for the guard and the other containing the principal stock of medicines. At the other end there are two small rooms used as a dispensary and office. The hospital not being raised from the ground, the wards become wet with moisture during the rains. The latrine and cook-house are two detached buildings, well-built and kept in good order.

Sickness, mortality, and invaliding. *Sickness, mortality, and invaliding.*—The sickness in the regiment during the past year has been twice as great as it was in 1872, and nearly three times as great as it was in 1871.

Fever and febricula have been the diseases under which a vast proportion of the cases have been admitted. 309 cases of the former and 259 of the latter having been entered out

of a total of 737 admissions during the whole year. Eighteen cases of rheumatism were admitted, which is rather below the usual average. Twenty-one of conjunctivitis occurred. Only eight cases of dysentery and seven of diarrhœa were admitted, a smaller number than would have been expected, considering the vicissitudes of temperature to which the men have been exposed. Shortly after the arrival of the regiment in the station a number of cases of guinea-worm occurred, brought, no doubt, from Secunderabad, as there has been only one admission under this head since April.

Two men died in hospital—one from consumption, and the second from dysentery.

Two men died out of hospital—one committed suicide by firing his loaded rifle through his head, the other man died when *en route* to his native country on sick leave.

Twenty men have been invalided—one for rheumatic affection, two syphilitic affections, three disease of the heart, two disease of the lungs, one skin disease, seven old age and debility, and four all other diseases.

Strength of the regiment—present 696, absent 10, total 706.

—	Period.		Strength.	Total Number of		Daily Average Number of Sick.	Per Cent. of Strength per Annum.		
	From	To		Admissions.	Deaths.		Admissions.	Deaths.	Daily Average Sick.
Head-quarters at Saugor...	10th January 1873.	31st December. 1873.	688·38	737	3	19·29	1·070	·0043	2·88
Wing at			...	...		None.		...	...
Detachments at			...	...		None.		...	...
On command to Jubbulpore.			5	...		None.		...	...
On sick leave			5	...	1	...	...	·0014	...
		Total ...	698·38	737	4	19·29	1·070	·57	2·88

Number of deaths—in hospital 2, out of hospital 2, total 4. Per cent. of total strength ·0057.
Do. invalided 20. Per cent. of total strength ·028.
Do. sent on sick leave 6. Per cent. of total strength ·0085.
Do. of days spent in hospital 7040·85, per admission 9·55, per man of total strength 10·081.
Do. of days spent on sick leave 149, per man 24·83, per man of total strength ·0021.
Total temporary loss of service per man of total strength 10·081.

Principal causes of sickness.—The great cause of sickness in the regiment during the past year has been that which affects all classes of the community—European and Native, in this part of India, *viz.*, fever. Under this sub-division (A) 583 admissions out of a total of 737 have been entered; of this number, 309 cases of febricula deserve little notice, as they were generally of a trifling nature, with no very marked features. The attacks were generally accompanied with derangement of the liver and digestive functions, and were very debilitating. Principal causes of sickness.

Fifteen cases of chicken-pox were admitted. They were generally trifling cases, unaccompanied with much fever, and they all recovered in the course of a week or ten days.

Although there has been no mortality in the corps under this general head, still the different forms of fever have been so prevalent, and so persistent among a considerable proportion of the men for the last three or four months, that their constitutions and stamina have been so much impaired as to render them in many instances incapable of performing any amount of arduous duty.

It is to be hoped, however, that this debilitated tone among so many of the sepoys may improve as the unhealthy season draws to an end. At present the men still continue to suffer from fever, though in diminished numbers.

Ague and febricula were most prevalent in the regiment during those months which have always been noted as the most unhealthy in the Saugor District, *viz.*, at the latter part of, and immediately after, the rains in the months of September, October, November, and part of December.

There being no records obtainable here of the amount of sickness among the regiments formerly stationed in those lines, no comparative statement of the extent of fever among the sepoys can be given. From what is stated, however, it would appear that the year 1873 has not been particularly unhealthy, and regiments formerly suffered in an equal, if not to a greater, degree.

On first arriving in Saugor there were several cases of fever, brought on no doubt by the extreme cold (to which the men had been totally unaccustomed), which occasioned derangement of the liver and stomach. In the months of February and March, when the weather became warmer, there was almost a total immunity from fever. The next two most healthy months were July and August, when the rains were heaviest. In the hot months, at the latter end of April, May, and June, a number of cases were entered under the head of febricula. These attacks may be attributable to the extreme heat of the weather, from which the men could not obtain any shelter in their small, confined, unventilated houses.

When the cold weather set in, several of the cases of fever were complicated with pneumonia, bronchitis, and other affections of the chest, which always prolonged the recovery, and in some instances the patients had to be sent on sick leave to their native country, as they appeared to have no power of rallying in this climate. Other men of the regiment would have been benefited by a change of air to their homes had they been able to undertake the journey, but in this distant station few of them can afford the expense of travelling so far with their families.

A very large proportion of the cases of fever recovered in the course of eight or ten days after the administration of quinine in moderate doses, preceded by purgatives and mercurials, as it was generally found that there was derangement of the biliary functions. There were, however, exceptions to this rule, and some cases of ague resisted the influence of arsenic and quinine, even when the latter was given by hypodermic injection. This latter method of administering quinine was generally most effectual, however, in stopping the fever, and it was only on two or three occasions it failed.

The most common variety of ague has been the quotidian; comparatively few cases of the tertian having occurred, and only seven or eight cases of quartan, nothing very marked was observed in the severity of the attacks of these different varieties. A very usual period for an attack of quotidian to last was 1½ hour cold stage, 2½ hours hot stage, and about 2 hours sweating. In some cases the depression occasioned by these attacks was very great, it being found necessary to stimulate the patients by means of spirits, &c.

The other diseases from which the men of the regiment have suffered have not been of any interest. Dysentery and diarrhœa have not been very common, neither have rheumatic attacks.

Principal causes of mortality.

Principal causes of mortality.—Captain Armstrong of the regiment died on the 5th of September Previously to reporting sick, on the 4th of August, he had not shown symptoms of being seriously unwell. He had been, however, away from the regiment on leave for two months. He lived an indolent life, never taking the smallest amount of exercise, and living freely both in eating and drinking, and he was very stout. He was reported sick with anasarca. It was then diagnosed that both his heart and liver were seriously affected. He was not benefited much by treatment, and was found unexpectedly dead in his bed on the 5th of September.

On a *post-mortem* examination the heart was found overlaid with fat, and the whole muscular tissue in a state of fatty degeneration. The liver was in an advanced stage of cirrhosis, hard and gritty, and somewhat enlarged. The kidneys were very much enlarged, pale, with extreme fatty degeneration throughout their whole structure.

Two men died in hospital during the year. One man, weakly and emaciated, died of phthisis. He had been ailing for some time previous to admission, got weaker every month, and died on the 12th May 1873.

One case of dysentery terminated fatally. This sepoy had been going on most favorably, when there was a sudden relapse, and the man died in a few hours afterwards. It was suspected that he had eaten a quantity of indigestible food.

Of the two cases which died out of hospital, one was a suicide committed by a private by shooting himself through the head after murdering a woman.

The second case was that of a sepoy who died on his way to his native country. He had delayed too long in Saugor after obtaining sick leave.

Epidemics.

Epidemics.—There have been no epidemics in the regiment during the year.

Vaccination.

Vaccination.—Vaccination was so thoroughly carried out in the regiment in 1872 that there was little left to be done during the past year. Fifty-seven children have been vaccinated, of which 53 were successful and 4 unsuccessful. On examining the recruits, it was found necessary only to vaccinate six of them, all of which were successful.

Recommendations.

Recommendations.—On account of the weakly state of a large number of the men in the regiment in the month of November, it was recommended that there should be a cessation of parades and drills for a short time. They were put a stop to for ten days.

11th Regiment Native Infantry.

Station—Nagode.

Arrived from Raepore 11th December 1872.

Average strength	699
Do. present	683
Admissions	419
Daily sick	14
Deaths in hospital	2
Do. out of hospital	1
Pensioned	3
Sick leave	8

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Year.	Station.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Raepore	125·71	3·57	3·13	3·73	...
1871 ...	Do.	98·97	3·21	1·02	2·77	·87
1872 ...	Nagode...	87·15	2·77	2·16	1·44	·86
Average ...	.....	103·94	3·18	2·19	2·64	·57
1873 ...	Nagode...	61·34	2·04	·42	3·57	3·29

Surgeon Sibthorpe was in charge of this corps during the year, and reports as follows :—

Climate.—The climate of Nagode is made up of extremes, being very cold in December and January, very hot in April and May, hot and moist nearly to saturation in July, August, and September. During the year under review the hot weather commenced about the end of February ; the hot winds, which generally blow from the north-west, commenced towards the end of March and lasted until the commencement of the monsoon on the 7th July. Climate.

In May the thermometer showed a temperature in the hospital wards of 100° to 108° F. at 6 P.M ; during that month there were a few duststorms, which cleared the atmosphere a little and cooled it for a day or so.

In June there were three or four thunderstorms, after which the weather became perceptibly cooler. The south-west monsoon was rather late in breaking this year ; it lasted 83 days, during which time rain fell on 43 days. Total quantity, 55 inches, rather above the average. The greatest fall in 24 hours was 6·8 inches on the 7th August. This season, with its constant moist heat, slight variation of temperature in the 24 hours, and scarcely any movement of air, was very trying. About the middle of October the cold season commenced. The most unhealthy months, as shown by the returns, were those immediately following the monsoon, when the admissions from fevers of a malarious character considerably increased in number.

The Native Infantry Regimental lines are about 300 yards beyond the cavalry lines on the same side of the road. They are on high ground, with a good slope towards the south. Two well-made streets run through them, the one north and south, 750 × 100 feet, separates the companies into half companies ; and that east and west, 756 × 100 feet, separates the regiment into wings. The subsidiary streets, 300 × 45 feet, all run north and south. Some of these streets have been built with only a single mud wall between two rows of huts, the remainder are separated by a passage, each hut having a back wall of its own. In many of these walls there is a small window which allows of more circulation of air. The lines were built by the 6th Madras Native Infantry during the years 1869 and 1870. The sizes of the huts for the different ranks are as follows :— The Native Infantry Regimental lines.

Rank.	Number of Rooms.	Measurement.	Total Cubic Feet.	Total Superficial Feet.
Subadar	Four rooms	8 × 10 × 8	2,560	320
Jemadar	Three do.	8 × 10 × 8	1,960	240
Havildar	Two do.	9 × 10 × 8	1,440	180
Naigue	One do.	12 × 10 × 8	960	120
Private	One do.	10 × 10 × 8	800	100

The only openings for ventilation are the front doors and the chinks caused by the irregularity of the tiles of the roof, and in some the small window before referred to.

Each hut has a small verandah in front, where the cooking is generally carried on ; in front of this is a courtyard 17 feet broad, where the men and their families generally perform their ablutions. In this yard is situated the latrine (to be afterwards described). In the front wall of the courtyard is a door of entrance ; in many of the huts this wall is covered over with a tiled roof large enough to preserve the walls during the rains, to make a small verandah on the side of the street where the men sleep during the hot weather ; and inside the courtyard it covers the latrine on one side of the door of entrance, and on the other makes a small store-room for firewood, &c.

The average population of the lines during the year has been 2,835 of all ages.

The average number of huts occupied during the year was 706.

An average cubic space could hardly be calculated, the numbers in each hut are so different, varying from a single man to eight or ten persons. The drainage of the lines is fair; from the courtyard of each hut a small drain carries the surplus and sewage water into the drains of the subsidiary streets which are all open and V-shaped and faced with flat pieces of stone. Their fall is towards the south, where they join at right angles a large open saucer-shaped masonry drain. At the south-east corner of the lines this unites with a similar one, which carries the flood water from the east of the lines, and one large drain carries all water outside the cantonment into one of the nullahs before alluded to.

No water lies about the lines during the rains.—*Vide* note at foot.

Prevailing diseases.

Prevailing diseases.—The prevailing diseases amongst the surrounding population are fevers of an intermittent character, often very low and chronic in type, followed in many cases by enlargement of the spleen and extreme anæmia; rheumatic affections are not uncommon. Venereal diseases are very frequently seen in the bazaar of the native town. A considerable percentage of the poorer classes are affected with a form of paraplegia, attributed by them to using the "Mutter dhall" (*Lathyrus sativus*) as the principal article of their diet.

Animal and vegetable products.

Animal and vegetable products.—There are several species of small game to be had close round the cantonment, including hares, partridges, rock grouse, quail, a few snipe, duck and teal on and about the tanks, which are very few in number; also antelope, foxes, jackals, and at some distance Keilghi sambur, jungle pig, hyænas, jungle cats, tigers, and few of the smaller species of deer, also peafowl, bustard, &c.

Cattle are to be had in numbers, as nearly all the carriage of the country is carried on by either pack bullocks or ponies (camels being rarely met with). These animals are badly fed during the hot weather, as there is great difficulty in procuring grass. Sheep and goats are very plentiful, and, as a rule, cheap, though their price is rising yearly on account of the constant demand for the supply of Jubbulpore, Allahabad, &c. In this regimental bazaar from 20 to 25 sheep and goats are killed and sold daily; the quality of the mutton has been good, but these animals suffer from the same difficulty of finding food during the hot weather.

The bazaar is always fairly supplied with country vegetables, such as melons, cucumbers, sag, brinjals, radishes, pumpkins, beans, turnips, sweet potatoes, &c., and in the cold weather many kinds raised from the seeds of plants originally imported from Europe can be obtained.

Water-supply

Water-supply.—The water used by the men is obtained from five wells, two in the middle of the lines and three outside at some little distance—one to the south, another south-east, another north-east. They are all faced with masonry and have masonry platforms; are covered over with cross beams of wood and provided with pulleys for assisting to draw the water; but instead of using them the men prefer standing on the wood-work and drawing the water directly. Outside the platform, where the bheasties leave their bullocks when filling the leather bags, there is a good deal of water spilled about, which makes the place very dirty. It was proposed to have this place metalled, giving the ground a gentle slope from the well, and surrounding it by a small drain to carry the surplus water into the side drain of the street. These wells are all sunk in limestone rock. During the last prolonged hot weather three of them dried up nearly altogether, and the opportunity was taken by the Officer Commanding to have them cleaned out and made deeper, by which means a small additional supply was secured. During that time the principal supply was drawn from the wells to the north-east and the south, in the first of which the supply never failed. After the rains these wells filled up close to the surface of the ground, or a difference of over 70 feet, their depth being 77½ and 77¼ feet. The depth the water was from the surface during the month of December was 27 feet. In the year 1869 the water of these wells was examined by Surgeon Whitwell, Bengal Medical Department, who reported on the quality as being "fair drinking water." They are rather hard, the principal part of which is "removable," and they were at that time free from organic impurities. His report was made before these lines were inhabited by sepoys; it would be interesting to find out if there is any difference in the quality at present; there is certainly no visible change.

Latrines.

Latrines.—On one side of the door of entrance of each courtyard is a small enclosure, made by either a mud wall or bamboo tatty, size about 6 × 3 feet, covered in many instances by the back of the roof over the front wall (alluded to in the description of the lines). In some of the courtyards stone flags have been placed over the small drains, so that the men can stand on them while washing. The sewage falls on either the bare earth or flags; there are no receptacles used for either solid or fluid excrement. The sweepers clean the latrine out twice a day, and sprinkle the ground with either a little dry earth or wood ashes. A small movable screen was put up close to the lines, but was not resorted to by the men to any extent.

The V- shaped drains have been found difficult to keep clean, especially at the angles, and to allow of a good deal soakage of sewage water through the spaces formed at the junction of the stones, it has been proposed to substitute masonry saucer-shaped drains for them.

In August last I suggested to the Officer Commanding that public latrines of some kind should be erected outside the lines, and that as many as possible of the inhabitants should be required to use them, in order to prevent the contamination of the earth in the lines, which are now nearly new. This, however, has not as yet been carried out.

Conservancy.—The conservancy establishment marginally noted is under the orders of the Regimental Quartermaster. The 16 under-sweepers are paid by the men and their families, and the cost of the carts, bullocks, and eight sweepers, *viz.*, Rupees 60 a month, is defrayed from Government funds. The lines are swept twice daily, including the drains, house latrines, &c., when all refuse and excrementitious matters are removed outside the cantonment and buried in trenches. Conservancy.

2 Carts.
4 Bullocks.
8 Sweepers.
16 Under-sweepers.

Soon after the arrival of the regiment at this station I suggested to the Officer Commanding that it would be a good opportunity to put a stop to the custom of the men keeping cattle in the courtyards of their huts; he agreed with me, and issued an order to the effect, at the same time permitting those who wished to erect sheds beyond the lines in a place set apart for the purpose, the Native Officers being also required to build stables for their ponies.

Hospital.—The building was originally built for the use of European troops, and is well suited in every respect for its present purpose, being now used as an hospital for the sick of the detachment 3rd Regiment Bengal Cavalry and of this regiment. It is well situated, lying north and south, on a piece of well-drained ground; its distance from the lines, *viz.*, three-quarters of a mile, is rather a disadvantage. The building is pucka stone, plinth 1½ feet high, roof thatched, open at the ends and centre of the ridge; also small openings between the roof and wall of the verandah. It consists of one long ward, $120 \times 20 \times 21$ feet $= 52{,}500$ cubic feet, and an enclosed verandah ward, $105 \times 10 \times 14$ mean height $= 14{,}700$ cubic feet. There are at present 33 beds in the larger and nine in the verandah ward. Outside the latter a tiled verandah has been lately added, keeping off the direct rays of the sun. On the eastern side of the building the verandah is open, in a corner of it the hospital guard remains, and this place has been protected by a bamboo jamp. A portion of both ends of the building has been cut off to form entrances, offices, and store-rooms. At the northern end is situated the dispensary and medicinal store-room of this regiment, and at the south end the store-room for bedding, hospital necessaries, and the dispensary of the detachment; the first three rooms have been enlarged during the past year by enclosing a portion of the verandah, as formerly the rooms were much too small. Ventilation by perflation through 16 glazed doors and nine arches corresponding to the doors of the enclosed verandah. The out-offices consist of a well-made latrine and a bath-room, to both of which there is a covered passage; a cook-room and two small wards, a short distance from the main building, for the isolation of cases of infectious disease; they are well ventilated by doors, windows, and ridge ventilators. Hospital.

A requisition has been made by the Officer Commanding on the Public Works Department for quarters for an Hospital Assistant and the two sweepers, to be built near the hospital.

There is a good well in the hospital compound surrounded by a masonry platform and covered by crossbeams of wood, also pulleys for drawing water. The supply has been abundant and the quality good throughout the year.

In the latrine the dry-earth system is carried out, two chatties being supplied to each place, one for solid, the other for fluid excrement; the necessary ablutions are performed in a small flagged yard outside, in which an open chatty has been sunk to catch the water and also for urination. Coal-tar is freely used on the walls and floors, and MacDougall's powder plentifully sprinkled about.

A good deal of trouble has been occasioned by the way the roped charpoys in the hospital are filled with vermin. On representing this to the Officer Commanding, he made a requisition upon the Public Works Department for a large boiler in which the cots could be immersed in boiling water. We have not yet heard the result.

Pyæmia.—In the month of September a sepoy in the hospital, suffering from an abscess in the sole of his foot, was attacked with pyæmia, but recovered. There was no overcrowding at the time, nor any cause that could be ascertained; he was at once isolated in a tent pitched near the hospital, and as soon as possible the building was vacated for the Public Works Department to have it thoroughly cleaned and disinfected, which they did by scraping the walls, whitewashing them, washing the floor which is flagged with flat pieces of stone; all the cots and their ropes were thoroughly cleaned with boiling water and some carbolic acid, the sick in the meantime being treated in tents. No more cases occurred. Pyæmia.

Food.—The principal portion of a sepoy's food is rice, which has been very dear during the past year, the men drawing from Rupees 3-8-0 to 5 a month compensation. The quality has been uniformly good, the bazaar has been well supplied with all the other articles of their diet, *viz.*, dhall, ghee, mutton, wheat, vegetables, &c. Wheat has also been dear. Mutton is very cheap, from Annas 1-6 to Annas 2 a seer according to quality. Food.

During the past year, while inspecting the men in order to fill up their medical history sheets, I could not help remarking the indifferent muscular development of many. Since

when I have made careful inquiries in order to find out the average daily diet of a sepoy belonging to either of the great classes to which the principal number of the men belong, and believe the following to be fairly correct :—

Gentoos.	*Mahomedans.*
Rice, uncooked, 2¼ pounds.	Rice, uncooked, 1 pound.
Dhall, from 4 to 6 ounces.	Flour (wheat) 1 pound.
Ghee, from 1 to 3 ounces.	Dhall, 4 ounces.
Mutton, from 2 to 4 ounces.	Mutton, 4 ounces.
Vegetables, from 7 to 9 ounces	Ghee, from 2 to 2½ ounces.
Salt, 1 ounce.	Vegetables, from 6 to 8 ounces.
Buttermilk, ½ a seer.	Salt, 1 ounce.
Currystuff, &c.	Currystuff.
Fish occasionally.	Fish and milk occasionally.
Generally divided into two meals, the first a light one, taken between 7 and 10 A.M., the second between 7 and 8 P.M.	Generally divided into a morning, midday, and evening meal.

These may be taken as an average diet of a sepoy who is well off and not surrounded by a large family, and appears to be sufficiently nutritious.

If all the men could afford so to live, we would, I think, have a different account to record, especially of the sickness returned under the head of malarious fever ; but a man, with a family of from two to sometimes eight or ten depending on his pay for subsistence, cannot afford such good food—at least he cannot afford to take a sufficient quantity of it. Another class who suffer from under-feeding is the recruit who has been transferred to the ranks from the class of recruit boy ; his relations, of whom there are often several, are supported on his small pay from the time his father dies and he is admitted on the recruit boy establishment ; they live literally on the food which should make him a fit candidate for the ranks. The consequence is that he never can develop into a fairly muscular man, and is well known to be a constant occupant of the hospital beds. (*Vide* note.) Certainly supporting a number of relations may be very praiseworthy, but a man drawing sepoy's pay cannot feed himself properly and do it.

Spirits. *Spirits.*—The spirit used by the men who do drink is distilled from the flowers of the Mahwah tree (*Bassia longifolia*). It is made of two qualities, the stronger, called "Dubarra," is sold at Annas 4 for an ordinary quart bottle; the other, called "Rassie," is sold at Annas 2 Pies 6 for the same quantity. The liquor is not a good one, as it gives rise to much biliousness and malaise. In consequence of the cheapness of liquor in this place, drinking has increased to some extent, as also have the punishments for drunkenness.

Clothing. *Clothing.*—The clothing of the men is well suited to the climate. They have been lately supplied with new overcoats, which are much required during the rains and in the cold weather.

Foot-soreness. *Foot-soreness.*—A considerable number of the men have suffered from blisters of the feet, the result of wearing badly-made and ill-fitting boots. Very few of these cases required admission into hospital. If they were excused from wearing them for a few days, they quickly recovered. The men are now able to purchase good woollen socks in the Quartermaster's store at 2 annas and 3 annas a pair. Many have supplied themselves, and from amongst those who wear them are rarely seen cases of sore-feet.

Duty. *Duty.*—The duty has been light during the past year, consisting of the usual guard-mountings, parades, drills, treasure parties, &c. The running drill is rather hard on the older and the weakly men, many of whom it had been necessary to recommend that they should be excused from it.

The proportion of nights in bed has varied considerably during the year. Before the right wing rejoined the head-quarters the duty was hard ; in both wings of the regiment the men were on duty once in three or four days. After the arrival of the right wing at Nagode the average was from seven to nine days.

The average for the year has been 6·43 nights in bed for all ranks.

Marching. *Marching.*—The right wing, strength two European Officers, 294 Native Commissioned, Non-commissioned Officers, and men, with 1,567 followers, marched from Raepore on the 13th March to rejoin head-quarters. They arrived at Nagpore on the 2nd April, distance 180 miles, in 17 marches with three halts. The longest march was 16 miles, and was done in five hours; the average rate of marching was 3⅛ miles per hour. The hours of starting varied from 2-30 A.M. to 4-30 A.M., according to the distance to be got over. They proceeded by rail from Nagpore to Satna and marched into Nagode on the 11th of April. The health of the men and their followers was excellent on the line of march.

Amusements. *Amusements.*—A sepoy generally rises about 4 A.M. ; after their morning ablutions they attend parade or roll-call, as the case may be ; if not for duty, they clean their arms, and,

Note.—On the inspection of the regiment by the Brigadier-General Commanding Saugor Circle in February last, he singled out several of the recruits as in his opinion being unfit for sepoys : they were brought before a special Invaliding Committee, and out of 37 8 were condemned as unfit for service, as being either weakly, badly developed, small-chested or flat-footed; several of the remaining 29 were only up to the standard laid down.

when finished, the rest of the day until evening roll-call is at their own disposal. The largest number of them idle about the lines or bazaar all day; a few go outside the cantonment either shooting, fishing, or coursing. After the monsoon and during the cold weather cricket was got up; a considerable number of the men attended regularly, and took a good deal of interest in it. Athletics of all sorts are sadly neglected. Their exercises consist of the usual routine of duties and parades. Trades and occupations are nearly unknown among them.

Vaccination.—Vaccination has been attended to. Re-vaccination of all the native ranks was commenced in October last, but it will be impossible to complete it this cold weather. Vaccination.

On our arrival at this station in December 1872 I wrote to Calcutta for vaccine lymph; they sent it, and continued doing so until the end of January, but I could not succeed in getting a single vesicle to form properly. I then wrote to Almorah, North-West Provinces, and received some very good lymph, from which I vaccinated 176 people—135 successful, 41 doubtful or unsuccessful. I ceased vaccinating in May, because it was found impossible to get characteristic vesicles to form. As soon as the rains were over re-vaccination was commenced again from a fresh supply of lymph received from Almorah.

Altogether this year there were 503 persons vaccinated or re-vaccinated—373 or 74 per cent. being successful, 33 or 6·58 per cent. modified, and 97 or 19·28 per cent. unsuccessful. In the body of the return (W. O. Form 298) at Form No. 5 it will be seen that 156 of the men have been vaccinated or re-vaccinated during the year. Of those who bore previous marks of small-pox, there were 58 re-vaccinated, 48 or 82·7 per cent. proving successful, 9 modified, and only 1 unsuccessful. Of those who bore marks of previous vaccination, 21 were re-vaccinated—17 or 80·9 per cent. proving successful, 2 modified, and 2 unsuccessful. Of those who bore no marks of previous vaccination or small-pox, 77 were vaccinated, 54 or 70·1 per cent. proving successful, 13 or 16·6 per cent. modified, and 10 unsuccessful.

The uniformity of these results is very interesting, as bearing out the view of Jenner: "That the cow-pox may be induced again and again in persons who, being protected against variola by the first attack of cow-pox, could not be variolated either by inoculation or exposure, as well as that cow-pox could be made to take in those who had had small-pox." (*Vide* E. A. Seaton, M.D., Article on Vaccination in Russel Reynold's System of Medicine.)

Out of these 156 men, 115 belonged to the companies in which the outbreak of small-pox occurred (to be afterwards referred to), and in the families of several of the men who were afterwards successfully vaccinated cases of the disease had presented themselves, and they were exposed to it throughout the whole epidemic, and in not a single instance were any of them attacked.

Epidemic of small-pox.—During the months of April, May, and June there was a slight outbreak of small-pox amongst the families of the men of the right wing. The first attack was on the 14th April, exactly 12 days after the arrival of the wing at Nagpore, where small-pox was epidemic, and at which place they halted for fifty hours, during which time many of the families are said to have visited the bazaar. Epidemic of small-pox.

The total number of families attacked was 18, comprising a population of 64 people, of which 23 were attacked, *viz.*, males 1, females 1, male children under 15 years of age 9, females 12. The following table shows the class of protection these people had, and the character of their disease:—

Class of Protection.	Confluent.	Semi-confluent.	Discrete.	Modified.	Total.
Said to have been vaccinated	1	3	7	3	14
Bearing four good marks of vaccination	...	...	...	1	1
None	...	2*	6	...	8
Total ...	1	5	13	4	23

The first report of the disease being in the lines was made on the 13th of May, or 31 days after the first child was taken ill. The wing was at once inspected and 15 cases discovered. The sick and their families were sent to a large isolated bungalow not far from the lines, and kept there; their huts were thoroughly scraped, leeped, and whitewashed. A guard was placed over the bungalow to prevent any communication with the inmates; their bazaar supplies were sent every morning, and a special bheesty and sweeper entertained for the use of this temporary hospital, the expense being defrayed from cantonment funds. After admission six more cases presented themselves in the same families and only two more admissions from the lines. I vaccinated all who were admitted into hospital from a fresh supply of lymph received from Almorah, but with the same unsatisfactory results, that caused

* There was only one death, a female infant, æt. seven months, on the ninth day of its illness.

me to cease vaccinating in the regiment the month before. Carbolic oil—strength 1 in 40—was daily smeared over the body in every case, and the peculiarly offensive smell so often perceived in a small-pox hospital was never present, and in not a single case was there any suppuration. Diaphoretics and diuretics were found useful in several of the milder cases.

In the case which was confluent the man, an unvaccinated sepoy, presented some very grave symptoms of profound blood poisoning on the ninth day of his illness, at which time his whole body was covered with the eruption. I at once had him put in a hot bath and repeated it in the evening with the happiest results; the next morning his head was clear, his circulation quiet, steady, and unembarrassed, and from that day he made a good, though slow, recovery. I allowed no case to leave the building until all the scabs had fallen off; and had all clothes, cooking vessels, &c., thoroughly washed and disinfected. I think I am justified in believing that the spread of the disease was cut short by the complete isolation of the sick and their families. The appearance of the sick improved at once after their removal into the large airy bungalow. There were no cases of this disease reported amongst the surrounding population.

Cholera. *Cholera.*—An epidemic of cholera broke out in the town of Nagode on the 26th of April and lasted until the 17th of July; during this time the disease spread to two of the villages before alluded to, as on the borders of the cantonment, *viz.*, Gowal Solie and Gungwaria. On the 7th July a case appeared in the old regimental bazaar; there were in all seven attacks, of which four proved fatal; the last case occurred on the 14th July.

During this time only one case appeared in the regimental lines; a sepoy, who had the day before gone into Nagode against orders, was attacked on the 29th May at 6 A.M., and died within twelve hours. He and all his people were at once isolated when his illness was reported; his hut completely cleaned out, the walls scraped, the floors dug up, the earth being carried outside the cantonment, the walls leeped and whitewashed.

There were no other cases.

During the epidemic every possible precaution was taken by the Officer Commanding to prevent communication with the infected localities, and the men were warned to report at once any symptom of looseness of their bowels.

This epidemic presented several features of interest; the—

1*st.*—Was its sporadic character; the longest interval between any two cases was ten days; a locality remaining free for some days, and cases again appearing without any definite cause or known connexion.

2*nd.*—There were several instances, similar to that of the sepoy, of men returning to their villages from Nagode, and within 24 hours being attacked with cholera; but neither in the case of the sepoy nor the first one in the old regimental bazaar could be traced any direct communication with people suffering from the disease.

3*rd.*—The first case in Nagode town was distinctly traced to a Mahomedan girl who had never been out of Nagode, nor in contact with any sick person, nor had any of her people. The morning she was attacked she had eaten some unripe mango, was soon after taken suddenly ill with purging and vomiting, and died within twelve hours.

4*th.*—The way the disease confined itself for the first six days to the people inhabiting the huts immediatly surrounding the one in which the first case died.

5*th.*—That the water-supply was drawn from several sources, all of which were used by many more people than those attacked.

General diseases. *General diseases.*—This year fevers of a malarious type caused the largest number of admissions, *viz.*, 176, out of a total of 419; 3 of these were for remittent fever, 141 of the quotidian type, 13 tertian, 3 quartan, and 16 irregular; out of these, 3 remittent fevers, 76 quotidian, 7 tertian, and 8 irregular were only admitted once, the remainder of the admissions being made up of double and triple admissions of the same man for the same or different forms of the disease. Closely connected with these admissions were two for brow ague, five for general debility, and one for anæmia.

The total number of men furnishing these admissions was 135. When making these calculations I was struck with the influence of caste on this class of disease which I have attempted to show in the following table:—

Caste.	All Ranks. Average Strength.	Total Admissions for Fever.	Ratio per Cent. to Strength.
Gentus	321	60	18·7
Mahomedans	253	43	16·9
Brahmins and Rajpoots ...	31	15	48·4
Other Hindus	52	10	19·2
Christians...	44	7	15·9
Total ...	701	135	...

It will be seen by the above that the Brahmins and Rajpoots, who are nearly all natives of this part of the country, have suffered out of proportion to the other classes. The reason is not very apparent; they are all fine, strong-looking men, without the least appearance of under-feeding; are well clothed, and their huts are not overcrowded, most of them being single men.

Out of the 176 admissions for fevers, 114 occurred during the monsoon months and those immediately following it, which, as I stated before, was the most trying time of the year. At this season and during the cold weather the overcrowding and want of good ventilation in the huts is aggravated by all the occupants sleeping inside at night. During this season also the ground under the huts is very damp, for, as stated in the remarks on the water-supply, the sub-soil water rises close to the surface, and all the sewage which has soaked into the ground during the hot and cold weather, and has not been oxidized, must be washed into the wells of drinking water. These causes no doubt all tend to reduce the vital powers, and more especially the strength to resist zymotic diseases.

Character of the disease.

Character of the disease.—During the early part of the year and in the hot weather it was found that all the cases admitted recovered under the most simple treatment—a few doses of either the infusion of cherata or cinchona, or a few drops of Fowler's solution completely controlled the paroxysms. As soon as the monsoon commenced the cases became much more serious, requiring sometimes large doses of quinine before the recurrence of the paroxysm could be stopped. This year the hypodermic method of introducing the drug was given a prolonged trial, first with a solution of one grain in five minims of distilled water dissolved in hydrocloric acid, but notwithstanding the greatest care being taken in the making and straining of the solution, many of the operations were followed by small abscesses. Afterwards a solution of one grain in nine minims, dissolved in sulphuric acid, was used, and with this solution there were no abscesses. Its use was, however, given up except in special cases, as the men showed great repugnance to the use of the needle, and there was reason to believe that they dreaded coming to hospital for fear of it; also because it was found that in most of the cases the injection of from two to four grains had no more effect in stopping the recurrence of the paroxysms than if the same quantity had been given by the mouth.

Complications.

Complications.—The principal complications met with were bronchitis, broncho-pneumonia, and pneumonia; they all yielded to the usual treatment, though generally requiring stimulants. In some few cases slight gastritis, constipation, mild forms of jaundice, and in one case dysentery. Splenitis was only met with in two cases; enlargements of the spleen were not common; delirium was very rare; headache was very troublesome in many of the cases; muscular pains all over the body caused a good deal of distress to some.

Sequelæ.

Sequelæ.—General debility, with anæmia and complete loss of appetite, wast he usual result of a prolonged attack. In some of these cases the patient appeared to improve for several days, when again he would get an attack of low fever, lasting from two to six hours, which threw him back again. The liberal use of the extras allowed, with some stimulants, combined with either the tincture of iron and some bitter infusion, or a combination of iron, quinine, and strychnia, brought all these cases round. No death has occurred during the year from this disease, nor has any man been sent from Nagode on sick leave.

Mumps.

Mumps.—During the early part of the year this disease prevailed to some extent amongst the children in the lines: six of the men were admitted suffering from it; they were all simple uncomplicated cases, and yielded to the usual treatment.

General conclusions.—

General conclusions.

Years.	Average Strength.	Total Admissions.	Average Daily Sick.	Total Deaths.	Total Admissions from Fever.	Total invalided, pensioned, or sent on Sick Leave.
1869	691·2	934	32·7	18	663	9
1870	681·0	841	25·	21	576	24
1871	684·0	677	22·	8	385	20
1872	685·5	597	19·3	16	297	16
1873	683·34	419	14·9	3	176	13

The above abstract shows a very considerable improvement in the health of the regiment for the past year, compared with the last four. This is, I think, due to the change of the climate, that of Nagode being much superior to Raepore. The men have improved in appearance, and show very few signs of having suffered from fever as severely as they did in Raepore in the years 1869, 1870, and 1871.

15th Regiment Native Infantry, Wing.

Station—Nowgong.

Average strength	355
Do. present	301
Admissions	303
Daily sick	8
Deaths in hospital	...
Do. out of hospital	...
Pensioned	...
Sick leave	4

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Stations.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Nowgong	149·83	2·70	2·03	...	5·76
1871 ...	Do.	121·67	3·14	·56	2·84	1·98
1872 ...	Do.	93·53	2·72	·85	·28	2·00
Average ...	.....	121·67	2·85	1·14	1·04	3·24
1873 ...	Nowgong	100·66	2·65	...	...	1·12

Surgeon J. Backhouse has been in medical charge of the left wing of this corps during the year, and reports as follows :—

Climate. *Climate.*—The climate of the station of Nowgong, Bundelcund, during the first three months of the year was very pleasant—winds cold, sun mild, and permitting to go about in the morning up to 11 o'clock. The afternoons, evenings, and nights are extremely pleasant : nice coldness prevails, and enables all to enjoy exercise in the open air. Has a most beneficial effect on health, and in assisting in recovering from disease. The months of April, May, June, and July were the hot months, especially June and July, the hot weather being continued into the latter month. The heat being great, the men were somewhat poor in condition, and when the rains came fever supervened. Then the latter two months, being very cold indeed at night and early morning time, assisted in improving the condition of the men.

Marches. *Marches.*—The regiment was not moved during the year 1873.

Sepoy huts. *Sepoy huts.*—The position of the huts are facing east and west and running north and south. Elevation slight, neighbourhood is good—open country on the north-east and east, cantonment south. The position is very healthy. The apartments in the huts are very good and everything that can be conducive to the health of the sepoy. The ventilation of the huts, guard-rooms, and solitary cells are all of a most efficient nature, and such as at all times to ensure a supply of wholesome air. The ventilation is of the cross variety (" perflation "). The drainage is very good, and of a variety which is adaptable to the country. Defects none, and consequently no recommendations were required.

Nuisances. *Any nuisances.*—There has been no nuisance during the year connected in any way whatsoever with the lines of the sepoys during the year 1873.

Water-supply. *Water-supply.*—The water of Nowgong, Bundelcund, is always in profuse abundance throughout the year. Its source is entirely from wells. The quality, I may say, cannot be surpassed ; likewise the quantity.

Sanitary arrangements. *Sanitary arrangements.*—The sanitary state of the sepoy lines are, in my opinion, excellent. I make three inspections during each month, and the Officer Commanding once a week regularly. They are the best lines I have seen.

Diet. *Diet.*—Provisions have been cheap and plentiful. Vegetables are not abundant at this station, but no disease ; scurvy or purpura hæmorrhagica shows itself at any time. The sepoys receive a little rice money each month owing to the scarcity of rice in this station, it not being a rice country. The various articles of diet sold to the sepoy have been all that could be desired to be conducive to health.

Clothing. *Clothing.*—The clothing of the sepoys has been suitable and adaptable to the climate. No recommendations were made, all being sufficient in quantity and of good quality.

Foot-soreness. *Foot-soreness.*—The men suffered a good deal from shoe-bites, but Colonel Grant had shoe-makers from Banda and all the material from Cawnpore. These chucklers then made up first-rate muster of boots—ammunition boots with square toes, low, broad heel, and flat soles—they answered admirably, and cost only 1 rupee 3 annas per pair.

Duty and exercises.—The duties have not been excessive for the men throughout the year. It was a little heavy from the middle of August until the end of September when cholera was prevalent in the adjoining districts, picquets being posted at the four points of the cantonment. The weather was very wet, raining constantly and heavy, thus causing many admissions from fever, and for the time lessening the average number of nights in bed. Notwithstanding which, the men bore against it remarkably well. Upwards of 25 men and a few Non-commissioned Officers were on duty in various parts of the cantonment each day. Average number of nights in bed five. Duty and exercises.

Drill.—The daily hours of drill have been morning between 6 and 8 A.M. and the afternoons from 4 to 6 P.M. generally. The influence on health has been beneficial. Recommendations none. Drill.

Exercises.—The only amusements or recreation as a rule that the sepoys enjoy is on Thursdays, the regimental holiday, and Saturdays in going out fishing and shooting. They enjoy it very much, and it also enables them to go to the Sudder bazaar and purchase provisions for the ensuing week. Exercises.

Lock-up rooms and prison cells.—All the sanitary conditions have been very good of all the lock-ups; likewise the cubic space, ventilation, cleanliness. Defects none. Recommendations none. Lock-up rooms and prison cells.

Vaccination.—In the month of December I had upwards of 52 children successfully vaccinated by 2nd-class Hospital Assistant Syed Ally. Small-pox none. Re-vaccination was not required. Vaccination.

Diseases.—No epidemics of any sort occurred in the cantonment during the year 1873. Diseases.

Ventilation of hospital.—The ventilation of the hospital is cross ventilation or perflation. Representations none. Overcrowding none. Ventilation of hospital.

Drainage and latrines.—Drainage has been correct and successful; latrines are on the dry-earth system; all has been well carried out. Representations none. Drainage and latrines.

Hospital water-supply has been excellent, and always is. Hospital water-supply.

Epidemic disease.—No epidemics have occurred, but the greatest precautions have been taken to keep out infected persons from adjoining districts by a large picquet of sepoys, which answered very well. Epidemic disease.

General conclusions.—This is, or has been, the fifth year of service for the sepoys of H. M.'s Left Wing 15th M.N.I. in the station of Nowgong, Bundelcund. They all have evinced a liking for returning to their own Presidency, and in fact, I think, have not been looking so well latterly. I have thought that some of them were becoming "home sick nostalgia." There are a large number of long-service men, from 35 to 41, who are all completely worn out and unfit for further service in my opinion, and consequently should be pensioned. The men now have all safely arrived in Palaveram, 17th February 1874. General conclusions.

16th Regiment Native Infantry.

Station—Jubbulpore.

Arrived from Bellary { Head-Quarters and Right Wing 20th November 1873. / Left Wing 10th December 1873.

Average strength	687
Do. present	687
Total admissions	296
Daily sick	12
Deaths in hospital	2
Do. out of hospital...	3
Pensioned	30
Sick leave	12

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years:—

Years.	Stations.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870 ...	Bellary	38·99	·88	·73	2·80	...
1871 ...	Do.	42·96	1·21	·43	1·29	·86
1872 ...	Do.	54·48	1·46	1·07	3·06	1·22
Average ...	.....	45·47	1·18	·74	2·38	·69
1873 ...	Jubbulpore	43·08	1·74	·72	4·36	1·74

The following medical officers have been in charge of this corps during the year :—

Surgeon-Major J. R. Theobalds.
Surgeon D. R. Thompson, M.D.
Do. C. Little.

The first-named submits the annual report of the head-quarters and right wing ; the second-named, that of the left wing.

Head-Quarters and Right Wing, 16th, Jubbulpore.

Climate. *Climate.*—Dr. Thompson, who was in charge of the 16th Regiment at Bellary, reports in November : "The climate during the year was very much the same as in the previous years. A few cases of dengue continued to be admitted into hospital during the first part of the year, but this cannot be attributed to any peculiarity of the climate, but merely a continuation of the epidemic of this disease which prevailed during the latter part of the preceding year." The climate at Jubbulpore from the date the 16th Regiment arrived at the station, November and December, has been good—cold, pleasant, and favorable to health.

Marches. *Marches.*—The head-quarters and right wing and families of the regiment left Bellary by special trains on 11th and 13th November, and arrived at Jubbulpore 20th and 21st November 1873. The left wing and families left Bellary by special trains on 3rd and 4th December, and arrived at Jubbulpore 10th and 11th December 1873. All ranks and families were very healthy during the journey.

Sepoy lines. *Sepoy lines.*—The Infantry lines are situated in the south-west angle of the station. Sixteen long barrack sheds and eight smaller sheds were built for a Bengal Native Infantry Regiment, with no provision for families and private followers. As this accommodation was found insufficient for a Madras Native Regiment, 300 huts, according to Madras pattern, were built on a plot of ground north and east of the old Bengal lines ; each hut is about 12 feet by 10 feet, built in single rows, with 50 feet space for front streets, which run east and west, 10 feet space for the alleys between the backs of two rows of huts ; and, as the streets and alleys run parallel with the prevailing winds, a free circulation of air is generally kept up in the lines.

The huts are small, mud walls, tile roof, no windows, one door, centre height of each hut 8½ feet, outside wall 5 feet 9 inches. Each of the 16 Bengal barracks have been divided by mud walls or mat screens into 18 partitions for 282 sepoys and their families, which gives to each private and his family about 136·50 superficial feet and 1,433 cubic feet space. The eight smaller barracks give accommodation to 16 Native Officers and their families. Each private has in the Madras hut about 120 superficial feet and 885 cubic feet of space for himself and family. Drainage of the lines at Jubbulpore natural and artificial, tolerably good ; drains are kept clean, and well cleaned out from time to time. The huts are ventilated through the interstices of the tiles of the roof, and for the entrance of air to the hut through a small low door leading from an enclosed verandah, with an opening of similar size in the front of door of hut.

Water-supply. *Water-supply.*—Good and abundant.

Sanitary arrangements. *Sanitary arrangements.*—Properly attended to.

Diet. *Diet.*—Provisions cheap and plentiful ; vegetables abundant. Rice money allowed.

Clothing. *Clothing.*—The clothing appears to be sufficient generally.

Foot-soreness. *Foot-soreness.*—None.

Duty and exercises. *Duty and exercises.*—Ordinary garrison and regimental duties, which have had no bad effects on the health of the men. Average number of nights in bed 3·93.

Drill. *Drill.*—During the chief part of the year while at Bellary three parades per week. Average 1¼ hour each, from 6-30 A.M. to 7-45 A.M. ; during hot season only one hour, from 5-45 A.M. to 6-45 A.M.

Exercises. *Exercises.*—Cricket and some athletic games. There is a gymnasium in the lines, where the recruit and orderly boys are ordered to attend once a day. Several of the sepoys attend without orders.

Vaccination. *Vaccination.*—205 cases were vaccinated during the year. Dr. Thompson reports in November 1873 : "vaccination regularly kept up by a female vaccinator, who vaccinated all those who were unprotected when she arrived." No cases of small-pox during the year.

Diseases. *Diseases.*—Dr. Thompson, who had medical charge of the regiment up to December 1873, reports : "No epidemic diseases prevailed during the year, except the few cases of dengue which occurred during the months of January and February, and this was simply a continuation of the disease which broke out during the latter part of the previous year ; 18 cases were admitted, and all recovered. No overcrowding in hospital, as the cases of dengue were treated in a quarantine shed. Two cases of phthisis pulmonalis returned as admitted during the year : the first man died when on sick leave, and the other was discharged from the service. Neither of these cases could be attributed to the influence of the climate, and the latter could not be traced to any hereditary transmission, as his parents and one grandparent, who are alive, are healthy, robust individuals."

Ventilation of the hospital.—Very good; no overcrowding. Ventilation of the hospital.

Drainage and latrines.—Good. Dry-earth sewage is carried out as far as possible, but the native patients will not throw dry earth on the excreta. I find the embankment of one foot of dry earth on the floor of the hospital latrines works well. Drainage and latrines.

Hospital water-supply.—Good and abundant. Hospital water-supply.

General conclusions.—Dr. Thompson, who had charge of the regiment up to December, reports: "The health of the regiment on the whole was very satisfactory. There was one case of death from beri-beri. There is still a tendency amongst some of the men to attacks of this disease, which they acquired when the regiment was on foreign service—Tonghoo. The regiment is under orders for Jubbulpore, and there are but few men ill from very mild complaints. General conclusions.

Left Wing, 16th, Bellary.

Climate.—The climate during the year was very much the same as in the previous years. A few cases of dengue continued to be admitted into hospital during the first part of the year, but this cannot be attributed to any peculiarity of the climate, but merely a continuation of the epidemic of this disease which prevailed during the latter part of the previous year. Climate.

Sepoy lines.—The barracks have a north-east and south-west aspect, and have a large open space on each side; these spaces are used as parade-grounds. They are well raised, their position is healthy. The ranges of huts in the "lines" are well apart, and have cut-drains for surface drainage, and the position of the "lines" is favorable to the complete removal of surface water. The neighbourhood is clean. The barracks, guard-rooms, and lines are well drained, but the huts and yards attached are drained (though imperfectly) by directing the fluids through small channels into chatties placed outside to receive it; this keeps the yards cleaner than they otherwise would be. Sepoy lines.

Any nuisance.—None, except from the small latrine which is used by the men on the barrack guards of the 4th and 16th Regiments. Nuisance.

Water-supply.—The water-supply obtained from the well and tank near the lines was abundant and good, as the timely falls of rain during the year prevented the supply from these sources becoming scanty and bad. Water-supply.

Sanitary arrangements.—The sanitary arrangements during the year were regularly and properly attended to. Sanitary arrangements.

Diet.—Provisions are dear; compensation as rice money is given to the men. Vegetables are scarce and dear. No gardens on account of the limited water-supply. Diet.

Clothing.—The clothing of the men when on duty was changed to suit the varying conditions of the seasons. Clothing.

Foot-soreness.—A few mild cases occurred, which were cured by simple treatment. Foot-soreness.

Duty and exercises.—The ordinary garrison and regimental duties, which do not seem to have had any bad effect on the health of the men. Duty and exercises.

Drill.—One hour's drill a day between the hours of 5 and 7 A.M., which is regulated according to the seasons. No injurious effects from drill. Drill.

Exercises.—Gymnastic exercises for recruits twice a week. I am of opinion that much more benefit would be derived from this exercise and regular drilling if they had more and better food. Exercises.

Vaccination.—Vaccination regularly kept up by a female vaccinator, who vaccinated all those who were unprotected when she arrived. No deaths from small-pox. Re-vaccination was finished in the previous year. Vaccination.

Diseases.—No epidemic diseases prevailed during the year, except the few cases of dengue which occurred during the months of January and February, and this was simply a continuation of the disease which broke out during the latter part of the previous year. Eighteen cases were admitted, and all recovered. No overcrowding in hospital. The dengue cases were all treated in a quarantine shed. Diseases.

Two cases of phthisis pulmonalis were admitted during the year. The first man died when on sick leave, and the other was discharged from the service. Neither of these cases could be attributed to the influence of the climate, and the latter could not be traced to any hereditary transmission, as his parents and one grand-parent who are alive are healthy, robust individuals.

Ventilation of hospital.—Good. No overcrowding. Ventilation of hospital.

Drainage and latrines.—Drainage complete; latrines always clean; and dry-earth sewage effectually carried out. Drainage and latrines.

Hospital water-supply.—Good. Hospital water-supply.

General conclusions.—The health of the regiment was on the whole very satisfactory. There was only one case of death from beri-beri. There is still a tendency amongst some of the men to attacks of this disease which they acquired when the regiment was on foreign service at Tonghoo. The regiment is under orders for Jubbulpore, and there are but few men ill from very mild complaints. General conclusions.

Deputy Surgeon-General Ranking inspected the left wing of this corps at Bellary on the 11th October 1873, and reports as follows :—

Barracks. *Barracks.*—I have no alterations to record in the general arrangement of the lines. They are very well kept. Drainage is as good as the system of open trenches in the soil admits of. The huts are in very fair repair and clean, and general conservancy is very carefully attended to.

Sanitary condition of all buildings. *Sanitary condition of all buildings.*—The sanitary conditions of all public buildings are good. There are no public latrines. The conservancy of the small latrines in the courtyards of sepoys' huts is well cared for.

Conservancy of the neighbourhood. *Conservancy of the neighbourhood.*—Immediate neighbourhood of lines very clean. Much prickly-pear bush has been removed. Sanitary surrounding now very good.

Hospital. *Hospital.*—No change in the accommodation. Hospital very clean and neatly kept. Drainage good. There has been no overcrowding. Ventilation excellent. Latrines very well kept.

20th Regiment Native Infantry.

Station—Banda.

Arrived from Seetabuldee 15th January 1874.

Average strength	669
Do. present	624
Admissions	1,339
Daily sick	62
Deaths in hospital	4
Do. out of hospital	1
Pensioned	25
Sick leave	23

The following return shows the rates of sickness, deaths, and invaliding as contrasted with previous years :—

Years.	Stations.	Rate per Cent. of				
		Average Strength Present.		Average Strength.		
		Admissions.	Daily Sick.	All Deaths.	Pensioned.	Sick Leave.
1870	Seetabuldee	116·13	3·19	·87	·87	...
1871	Do.	132·21	3·66	·59	·44	1·77
1872	Do.	160·45	4·69	1·01	1·15	1·29
Average ...	... ...	136·26	3·84	·82	·82	1·02
1873	Near Banda	214·58	9·93	·71	3·73	3·43

The following medical officers have been in medical charge during the year :—

Surgeon A. McClorg, M.B.
Do. W. J. Hastings.

The latter reports as follows :—

Climate. *Climate.*—The heat in the hot months is intense and debilitating, especially in the huts occupied by the men. The rains are also very trying. Fevers are very prevalent in the rains.

Marches. *Marches.*—Marched from Seetabuldee on the 10th and 11th December 1873, arrived by train at Jubbulpore on the 15th December, and thence, by marches of about 10 miles daily, to Nowgong and Banda, arriving at the former on the 7th January 1874, and at the latter on the 15th of the same month.

Sepoy lines. *Sepoy lines.*—The aspect, elevation, and neighbourhood of the lines are all bad; the position is undoubtedly unhealthy. Huts dark, small, and overcrowded, and their enclosures often dirty.

Guard-rooms. *Guard-rooms.*—The ventilation of quarter-guard room near the hospital insufficient. Too many men in one guard-room. I believe this could not be helped, as there was no other accommodation available.

Nuisance. *Any nuisance.*—One latrine for men near hospital reported, "not properly cleaned out;" result, an extra sweeper employed.

Water-supply.—Wells, pucka built with platform, no covers. Water drawn by vessels let down by cords; quality sometimes inferior, as the water which rises up through the soil in the lines during the rains most probably communicates with it; the quantity is sufficient. Water-supply.

Sanitary arrangements.—The sanitary arrangements have been properly attended to by the regimental authorities, as the local causes of disease above pointed out cannot be removed by them. Sanitary arrangements.

Diet.—Provisions cheap and plentiful; vegetables plentiful in rains and cold season, but not during the hot weather. The average monthly compensation allowed has been Rupees 2-2-11 per man per mensem. Generally speaking, considering the country, climate, season, and duties, I believe many of the men are unable to provide food sufficiently nutritive and varied to preserve health. Diet.

Clothing.—The uniform of the men has been sufficient. The private clothing very deficient during rainy and cold seasons. Clothing.

Foot-soreness.—None to speak of. Foot-soreness.

Duty and exercises.—The head-quarters, having to do the work of the whole regiment, were, in my opinion, overworked. The Commandant lowered the number of guards as much as he could. Duty and exercises.

Number of nights in bed 2¾.

Drill.—One hour every evening, from 5 to 6, except Thursdays and Sundays. Recommended guards and duties generally to be lightened as much as possible; complied with. Drill.

Lock-up rooms and prison cells.—One cell near hospital very hot in hot season; prisoners complained of it. Door ordered to be kept open. Lock-up rooms and prison cells.

Vaccination.—All the sepoys, and as many women and children as possible, examined. All not protected were vaccinated. Total number vaccinated among the men and families 160—successful 100, unsuccessful 60. Vaccination.

Diseases.—Two epidemics occurred, one of small-pox, the other of dengue. Small-pox could, for two reasons, easily find its way into the lines: 1*st*, because part of the men live in a village mixed up with civilians; 2*ndly*, because of the women and children, the former not being vaccinated and often doing all they can to prevent their children being vaccinated. On account of the utter impossibility of isolating the men from their families, once small-pox gets into a Madras Native Infantry Regiment, it is extremely difficult to get it out again. The dengue was characterized by intense heat of skin, brilliancy of the eyes, white-furred tongue, intense pain in head, back, and all the joints, in some cases a transient eruption, generally difficult to see distinctly in natives. In severe cases difficulty of breathing, bronchitic or pneumonic symptoms. General debility invariably followed, and in my own case a profuse discharge of phosphates which caused great irritability of the bladder and exhaustion, resisting all treatment for months. Smarting of urine often occurs. Diseases.

Only one case of death from phthisis occurred. This man had just returned from sick leave. It appears to have been hereditary. Ventilation of hospital.

Ventilation of hospital.—Good. The wards were often overcrowded, the standard accommodation having been for 18 men, and the average daily sick was 86·60 for the quarter ending 30th September 1873. This was obviated to a certain extent by tent accommodation. General conclusions.

General conclusions.—The general conditions under which the men were placed at Seetabuldee were in my opinion well calculated to damage their health and afford every facility for the introduction and spread of disease. These lines should not in my opinion be occupied by any troops. The duties at Seetabuldee were too heavy for the wing.

Deputy Surgeon-General Tribe inspected this corps at Seetabuldee on the 18th October, and reports as follows:—

Barracks.—The lines of this regiment are so notoriously unhealthy in every respect that they call for no observation beyond the remark that I trust fresh lines will soon be built on the slope of the hill. The deaths among the followers for 1869, 1870, 1871, 1872, 1873 till 18th October have been 27, 35, 29, 18, and 26, respectively. I do not know the strength, but considering the state of the lines, and the sickness of the sepoys, this appears very few. Barracks.

Sanitary condition of all buildings.—The guard-room is theoretically crowded, but it is so well ventilated, clean, well drained, and affords such ample accommodation for its inmates, that it is quite a palace compared with the residences of the sepoys, as with the lines every thing is done that the regimental authorities have power to do. Sanitary condition of all buildings.

Conservancy of the neighbourhood.—Everything that can be desired. Conservancy of the neighbourhood.

Hospital.—The hospital is as clean as it can well be while so full of patients. It is well drained, but unfortunately its drainage runs into the lines, where it is impounded. It is well ventilated too, but as regards accommodation altogether insufficient. Unless the present lines are thoroughly drained or removed to higher ground, an hospital for at least 100 patients is requisite. I found the latrine in such a filthy state from there being only one toty that I did not venture into it, but at once wrote to the Executive Commissariat Officer to provide and pay a second toty on my responsibility. Hospital.

Hospital baths.—A large tub, foot tub, and hip bath. Hospital baths.

A Report on an Outbreak of Cholera in the Town and District Jail of Banda; also in the Right Wing and Head-Quarters of the 15th Regiment Madras Native Infantry stationed at Banda during the year 1873.

The first nine months of the present year differed in many respects from the corresponding period of last year. Small-pox was prevalent during the months of March, April, and May, but the disease in most of the cases was of a mild type.

2. The hot season was long, and, with the exception of about twenty days in June, it did not appear warmer than former years; but the rains appeared remarkably late, in fact not till three weeks after the ordinary time. There was a solitary shower on the 19th June; but the first real shower, or commencement of the rains, did not occur until the 7th July, and during the remainder of the month the rainfall was heavy and almost continuous, and considerably greater than during July 1872.

3. Up to the 14th August the rain continued to fall in proper quantities, when it suddenly stopped, and did not again appear until 29th August.

4. This was an unusually long break compared with former years, and during the greater portion of this break, especially the first half, the sky continued very clear, the air remarkably still, and the sun's rays extremely hot, and the immense quantity of flies everywhere present remarkable; but during the latter part of the break the sky became cloudy and the atmosphere heavy, and remarkably depressing.

5. Owing to the great and somewhat sudden rainfall up-country the Jumnah became very full, and, as a consequence, the water of the river Kane (which latter river empties itself into the Jumnah) was driven back, and on the 10th August a portion of the town of Banda became inundated, the result of the overflowing or rising of the Kane.

6. The water entered and inundated that portion of the town which was lowest, and partially or wholly destroyed one hundred and fifty-six houses. The water continued to occupy this portion of the town for three days, after which time it completely disappeared.

7. It was about this time, *viz.*, on the 10th August, that cholera appeared in an epidemic form in Banda.

8. Chiefly in consequence of the late rains, the high prices—the result of a previous bad harvest—and the normal condition of a great many of the cultivators being one of debt, the state of the poorer classes became very bad, and, if a famine to some extent did not exist previous to the rains, things in general most undoubtedly pointed strongly that way, in fact so much so that Mr. Thornhill, the Collector, considered it absolutely necessary to give relief to a large number of the poor by employing them on various works.

9. The town of Banda is situated low, is clean, well drained, and the country immediately surrounding it tolerably well wooded. It is central, having main roads leading to Futtepore, Humurpore, Nowgong, Nagode, Kallinger, and Kirwee, from all of which places it is nearly equidistant.

10. The inhabitants of the town of Banda as a class are decidedly poor and weakly, a large number suffering from enlargement of the spleen, the result of frequent attacks of malarial fever.

11. It is not at all uncommon for some of them to commit crime for the sole purpose of being sent to jail, where they find all their wants, both bodily and mentally, carefully attended to. When outside the jail they feel themselves neglected, but the moment they enter they know that great care must be given to their cleanliness, material and style of clothing, food, habitation, general health, and, lastly, their education.

12. The first case of cholera occurred on the 9th June in the town of Banda, the patient being a woman pilgrim, aged about forty years, caste Bunyean. This woman had been to Juggernath where cholera was then prevalent, and previous to arriving in Banda stayed some time at Chiterkote, where the disease also existed. She left Chiterkote on the 6th June and arrived in Banda at 4 P.M. on the 8th June, apparently in good health. The following morning at 4. A.M. she was attacked with cholera, and sent to the civil dispensary in a collapsed state, but recovered after six days.

13. The second case did not occur till fourteen days afterwards, *viz.*, on the 20th June, the patient being a girl six years of age, the daughter of a Baboo employed in the Collector's Office. I could trace no connexion between the above two cases. This girl died on the 20th June, and her brother was attacked the same day, but recovered.

14. The fourth case did not occur till the 28th July, and the fifth case happened on the 8th August, being an interval of eleven days. Almost immediately after the latter date, *viz.*, on the 10th August, cholera assumed an epidemic form in the town of Banda.

15. Up to the 16th August the disease was confined to the town of Banda; but on the night of the 16th the first case occurred in the lines of the 15th Regiment M. N. I. in No. 2 Company, hut 118, the patient being a married woman, aged 18 years, Hindu, the wife of a Havildar. This woman was attacked with purging and vomiting at 10 P.M. on the night of the 16th August, followed by severe cramps in the legs and abdomen. Medical aid was sent for at 4 A.M. the next morning, when she was found in a collapsed state, and expired at 9-45 the same morning. This woman had always enjoyed good health up to the 16th, and on that day had taken her usual breakfast and dinner, composed of rice, dhall, and mutton.

16. The second case occurred in a girl aged three years in No. 3 Company, hut 236. She was attacked at 11. P.M. on the night of the 16th August, and expired at 3 P.M. the next day. No fresh cases occurred from the 16th to 23rd, but many cases of diarrhœa were treated in the families. On the 23rd August two fresh cases occurred, both children, in No. 3 Company, and in huts 250 and 263. From this date cholera prevailed in cantonment till the 5th September, when the last case occurred.

17. 170 men marched into camp, about 2½ miles from cantonment, on the 9th September, and returned to cantonment on the 20th September in accordance with orders from the Brigadier-General. The disease was chiefly confined to the followers of the regiment, one sepoy only having died. The total admissions were 16 and the total deaths 9. The total population in cantonment was 1,147, *viz.*, 385 sepoys and 762 followers.

18. The lines are situated north of the town, and built on black cotton soil, and about one mile distant from the town of Banda. The huts are quite new, and were only completed in April 1872. The huts are constructed in four ranges running from east to west, and each range is formed of a central mud wall, having a tiled slanting roof on each side, so as to form two separate huts; the superficial space of each private's hut is 192 square feet and the cubic space 1,776 feet; each hut has also a small yard in front, measuring 192 square feet and surrounded by a wall 6 feet high. Each sepoy is supplied with one hut; but, if married, his family also resides with him.

19. The following shows in detail the number of cases, the class of persons attacked, and the number of each who have died in cantonment.

20. The Banda Jail was the last place attacked by the disease. The first case occurred in the Jail Hospital on the night of the 31st August, and proved fatal the next morning. The deceased, aged about 34 years, caste Hindu, apparently strong and well nourished, was admitted into hospital at 12 noon on the 31st August, complaining of slight fever; but during the night he was suddenly attacked with purging and vomiting, and expired the next morning at 6-30 A.M. He was a convicted prisoner; had been employed doing repairs within the jail, and at the time of his death had been confined one month and twenty-three days.

21. The second case occurred on the 3rd September. The patient, aged forty years, caste Brahmin, was attacked with purging at 7 P.M., and two hours afterwards vomiting set in, and he expired at 6-30 A.M. the next morning. The above man had been two months in jail, and previous to his death was employed as a cook.

22. Cases occurred almost daily up to the 15th September, from which date no fresh cases occurred for eight days, when, on the 23rd September, one solitary case happened; again there was an interval of eleven days, when another solitary case occurred on the 4th October, and then there was an interval of six days, when another solitary case occurred on the 10th October, which was the last of the disease.

23. The following is a list showing the date, name, sex, age, caste, &c., of those attacked:—

Nominal Register of Cholera Patients treated in the Hospital of Her Majesty's Head-Quarters and Right Wing, 15th Regiment Madras Native Infantry.

No.	Names.	Age. Years.	Age. Months.	Caste.	Sex.	Occupation.	Date and Hour of Attack.	Number of Company and Hut.	If admitted into Hospital, Date and Hour.	Discharged Cured.	Died, Date and Hour.
1	Nagummah...	18	...	Hindu	F.	Wife of a Havildar...	10 P.M., 16th August 1873.	No. 2 Co., Hut 118...	4 A.M., 17th Aug. 1873...	.....	9-45 A.M., 17th Aug. 1873.
2	Alungarum	3	...	Christian ...	F.	.....	11 P.M., 16th do. ...	„ 3 do. do. 236...	5 A.M., 17th do. ...	.....	3 P.M., 17th do. ...
3	Unnammah...	3	...	Hindu	F.	.....	5 P.M., 23rd do. ...	„ 3 do. do. 250...	9 P.M., 23rd do. ...	.....	4 P.M., 24th do. ...
4	Pauchoo	9	...	Mussulman ...	M.	.....	6 P.M., 23rd do. ...	„ 3 do. do. 263...	9 P.M., 23rd do. ...	.....	8 P.M., 26th do. ...
5	Seethummah	24	...	Hindu	F.	Wife of a Havildar...	1 A.M., 25th do. ...	„ 3 do. do. 250...	6 A.M., 25th do. ...	30th Aug. 1873.	.....
6	Cunnammah	9	...	Do. ...	F.	.....	8 P.M., 24th do. ...	„ 3 do. do. 250...	6 A.M., 25th do. ...	.....	4 P.M., 25th Aug. 1873.
7	Paradasy, Gl. No. 356, No. B Co., service 15 years ...	33	...	Do. ...	M.	Private	3 A.M., 25th do. ...	„ 2 do. do. 157...	7 A.M., 25th do. ...	30th Aug. 1873.	.....
8	Jamalodeen Sheriff, Gl. No. 739, No. A Co., service 1 year	19	...	Mussulman ...	M.	Do. ...	4 P.M., 24th do. ...	„ 1 do. do. 47...	8 P.M., 24th do. ...	30th do. ...	.....
9	Cathoojahee	22	...	Do. ...	F.	Wife of a Private ...	9 A.M., 29th do. ...	„ 3 do. do. 97...	.....	.....	8 P.M., 29th Aug. 1873.
10	Iyaukoottee, Gl. No. 54, No. D Co., service 31 years ...	49	...	Hindu	M.	Private	10 A.M., 29th do. ...	„ 4 do. do. 296...	9 P.M., 29th Aug. 1873...	.....	7 A.M., 30th do. ...
11	Padavettah	18	...	Do. ...	F.	Wife of a Naigue ...	6 P.M., 29th do. ...	„ 4 do. do. 323...	5 A.M., 30th do. ...	4th Sept. 1873.	.....
12	Maniccum	5	...	Do. ...	F.	.....	6 A.M., 31st do. ...	„ 4 do. do. 303...	8 A.M., 31st do. ...	6th do. ...	.....
13	Abdoolcurreem	31	...	Mussulman ...	M.	Bazaar Cotwal ...	6 P.M., 31st do. ...	Regimental Bazaar Hut No. 1. ...	1 A.M., 1st Sept. 1873...	.....	9 A.M., 1st Sept. 1873.
14	Caseemkhan, Gl. No. 593, No. A Co., service 5 years..	23	...	Do. ...	M.	Private	3 P.M., 1st Sept. 1873 ...	No. 1 Co., Hut 68...	8 P.M., 1st do. ...	21st Sept. 1873.	.....
15	Ranganaikooloo	12	...	Hindu	M.	Recruit Boy ...	3 P.M., 2nd do. ...	„ 1 do. do. 40...	8 P.M., 2nd do. ...	.....	2 P.M., 3rd Sept. 1873.
16	Amurbee	19	...	Mussulman ...	F.	Wife of a Naigue ...	10-30 A.M., 5th do. ...	„ 4 do. do. 342...	11 A.M., 5th do. ...	17th Sept. 1873.	.....

1	2	3	4	5	6	7	8	9	10	11	12	13
Serial Number.	Month and Date.	Name of Prisoners.	Age.	Sex.	Caste.	Criminal or Under Trial.	Where attacked.	Hour of Attack.	Hour of Death.	Nature of Complaint.	Nature of Employment in Jail.	Remarks.
	1873.											
1	31st August ...	Bindwa... ...	34	M.	Kurt ...	Criminal ...	Barrack No. 9 ..	9 P.M., 31st August...	6-30 A.M., 1st Sept. ...	Cholera ...	Repairing jail ...	Died.
2	3rd September.	Sheogobind ...	40	M.	Brahmin ...	Do.	Do. „ 8...	7 P.M., 3rd Sept. ...	Do. 4th do. ...	Do. ...	Cooking	Died.
3	4th do. ...	Mustt Koodia ...	35	F.	Thakoor ...	Do.	Do. „ 1...	8 P.M., 4th do. ...	.....	Do. ...	Thread-making ...	Recovered.
4	4th do. ...	Toolshee ...	46	M.	Do.	Do.	Do. „ 11...	11 P.M., 4th do. ...	7 P.M., 5th Sept. ...	Do. ...	Drawing water ...	Died.
5	5th do. ...	Runia	30	F.	Aruck ...	Do.	Do. „ 1...	3 A.M., 5th do. ...	5 P.M., 5th do. ...	Do. ...	Thread-making ...	Died.
6	5th do. ...	Motee	32	M.	Thakoor ...	Do.	Do. „ 11...	6 A.M., 5th do. ...	1 P.M., 20th do. ...	Do. ...	Drawing water ...	Died.
7	5th do. ...	Narain	34	M.	Brahmin ...	Do.	Do. „ 5...	8 A.M., 5th do. ...	.....	Do. ...	Grinding	Recovered.
8	6th do. ...	Mutowla ...	35	M.	Pashee ...	Do.	Do. „ 7...	5 A.M., 5th do. ...	2 A.M., 9th Sept. ...	Do. ...	Cleaning jail ...	Died.
9	8th do. ...	Chotwa... ...	18	M.	Brahmin ...	Do.	Do. „ 12...	6 A.M., 8th do. ...	.....	Do. ...	Durree-weaving ...	Recovered.
10	8th do. ...	Banee	36	M.	Thakoor ...	Do.	Do. „ 3...	2 P.M., 8th do. ...	.....	Do. ...	Khan do. ...	Recovered.
11	9th do. ...	Fakeera ...	32	M.	Aheer ...	Do.	Do. „ 4...	4 A.M., 9th do. ...	1 P.M., 9th Sept. ...	Do. ...	Repairing jail ...	Died.
12	10th do. ...	Jaganath ...	21	M.	Brahmin ...	Do.	Do. „ 9...	2 P.M., 10th do. ...	.....	Do. ...	Do. ...	Recovered.
13	10th do. ...	Poorun	44	M.	Thakoor ...	Do.	Do. „ 3...	2-10 P.M., 10th do. ...	7 P.M., 12th Sept. ...	Do. ...	Do. ...	Died.
14	10th do. ...	Ghoonoea ...	24	M.	Sweeper ...	Do.	Do. „ 6...	8 P.M., 10th do. ...	4 A.M., 11th do. ...	Do. ...	Mehther	Died.
15	11th do. ...	Meharban ...	30	M.	Thakoor ...	Peon Warder ...	.....	12 A.M., 11th do. ...	11 P.M., 11th do. ...	Do. ...	Warder	Died.
16	12th do. ...	Ramzan Ally ...	40	M.	Mussulman.	Under trial ...	Barrack No. 10...	11 A.M., 12th do. ...	.....	Do. ...	Under trial ...	Recovered.
17	15th do. ...	Sheogolum ...	44	M.	Thakoor ..	Criminal ...	.....	1 P.M., 15th do. ...	1 A.M., 16th Sept. ...	Do. ...	Cleaning jail ...	Died.
18	23rd do. ...	Dayna... ...	24	M.	Aheer ...	Do. ...	Barrack No. 8...	4 A.M., 23rd do. ...	10 P.M., 26th do. ...	Do. ...	Repairing jail ...	Died.
19	4th October ...	Jewrakun ...	30	M.	Thakoor ...	Do. ...	Do. „ 6...	10 A.M., 4th October.	5-30 P.M., 6th October.	Do. ...	Thread-making ...	Died.
20	10th do. ...	Bara	35	M.	Do.	Do. ...	Do. „ 6...	10 A.M., 10th do. ...	11 P.M., 12th do. ...	Do. ...	Blanket-weaving ...	Died.

24. The jail is situated close and to the north-west of the town of Banda. The drainage is good, but the building is surrounded by two separate high walls, which no doubt are a great impediment to its thorough ventilation. All the prisoners sleep on raised cots. The dry-earth system of conservancy is strictly carried out, and each prisoner is never allowed less (and very frequently more) cubic and superficial space than that laid down in the Jail Code.

25. The total number of cases treated in the town of Banda (including 32 cases treated at Cholera Hospital outside the town) was 329; of this number, 169 are reported to have recovered and 160 to have died. In the cantonment of the 15th Regiment Madras Native Infantry the total number of cases was 16; of this number 7 recovered, and 9 died. In the Banda Jail the total number of cases was 20; of this number 6 recovered, and 14 died. The percentage of deaths to those attacked is, therefore, as follows: in the town of Banda 48·63, in the cantonment 56·25, and in the jail 70.

26. From the above it would appear that the deaths in the town were comparatively less than those in cantonment or jail; but I do not believe such to be really the case for the following reasons. All cases occurring in the jail and cantonment were each seen daily by me, and no cases entered under the head of cholera, except where the disease was genuine and well marked; but in the town a great number was seen by a Compounder, the Native Doctor not having sufficient time to visit all the cases and attend to the in and out door patients at the dispensary, where the daily average out-patients are 150 and the in-door 32. I have known cases reported as cholera which were fever or diarrhœa; and, as the Collector promised a present if all worked well, I have no doubt that cases were reported as cholera which were not cholera, although, perhaps, quite unintentionally.

27. I have often remarked that when cholera is epidemic in a place, most people become nervous; and minor ailments, which at other times would not be mentioned, are then quickly and minutely communicated; so that many persons, if they have any one of the symptoms of cholera, fully fancy they had contracted the disease, never for a moment thinking that the one symptom from which they are suffering at the time may be a consequence of lots of other diseases as well as cholera.

28. I held a *post-mortem* examination on every case dying in jail, and the following was seen in almost all the cases:—The hands and feet were found shrivelled and the abdominal wall flattened, causing the false ribs to appear very prominent. The membranes of the brain in all cases were found congested, and where the congestion was great the substance of the brain was also found congested, and the fluid in the cerebral ventricles tinged with blood; but when the membranes of the brain were only slightly congested, the substance of the brain was not congested, and the fluid in the ventricles appeared perfectly clear. The blood in the cerebral sinuses was always dark, thick, and tar-like looking. The lungs were found congested in all cases, but especially in those who were two or more days suffering from the disease; and in some cases the lungs were found very much collapsed and occupying only a very small portion of their usual space. The heart usually contained fluid blood, but in some cases the blood was semi-coagulated. Fibrinous clots were sometimes seen. The liver was always congested, but in every case the blood was remarkably fluid, and the gall bladder in most cases was immensely distended with bile. The stomach generally contained a quantity of water, which was occasionally tinged with bile, and the mucous membrane had a washed and white appearance. In all the cases the peritonium and external surface of the intestines had a slightly congested appearance. The mucous membrane of the latter had a washed, wrinkled, and white appearance when the patient quickly succumbed to the disease, and with this condition the intestines were found to contain a quantity of fluid extremely like rice-water mixed with small flocculent particles. In cases where diarrhœa was absent for one or more days before death, the mucous membrane was found covered by a brownish-colored fluid, in some cases highly tinged with bile, but in all such cases the amount of fluid present was scanty; in some cases this scanty fluid was mixed with bubbles of air. The kidneys were in every case found intensely congested, the bladder empty, and the spleen congested.

29. The epidemic under review I consider to have been of a more severe type than the one during 1872, the number of persons attacked being more than double that of 1872. Last year the jail and cantonment escaped, not a single case having occurred in either place; but during 1873 no place escaped.

30. In reporting on an epidemic one is generally supposed to give the cause, or, at least, to give something that he supposes to be the cause; but for my part I feel bound to confess that I cannot even guess at the primary cause of cholera. At the same time I fully believe that the overflowing of the river Kane, and consequent inundation of a portion of the town of Banda, coupled with the poverty-stricken condition of the people played an important part in extending and intensifying the disease. It is worthy of notice that the disease at that part of the town which was inundated was scarcely, if at all, more severe than in the other parts, which is contrary to what many persons would be led to suppose.

31. It is somewhat remarkable that cholera in the town during 1872 and that during 1873 became epidemic almost about the same time, and ceased to be epidemic also about the same time. In 1872 the disease became epidemic on the 9th August and disappeared on

the 22nd September. In 1873 the disease became epidemic on the 10th August and disappeared on the 18th September.

32. The treatment in the majority of cases was as follows :—In the first stage tincture of opium and dilute sulphuric acid and chlorodyne. In the second stage cholera pills (composed of camphor 1½ gr., assafœtida 2 grs., black pepper 2 grs.) with a mixture (composed of garlic, chillies, brown sugar, salt, and country wine) ; friction to the body with ginger, and hot bottles or bricks to the extremities. In the third stage cold to head, aromatic spirits of ammonia, conjee, &c.

33. The precautionary measures taken were as follows in the town of Banda :—Cholera-sheds were erected about one and a half miles from the town, where a Dresser and Municipal Vaccinator were stationed, with a sweeper and other servants. All patients without friends and willing to go were sent to those sheds for treatment. The Native Doctor and Compounder attended to the cases in the town ; and after each death the body clothes and bed were first burned and afterwards buried, the house fumigated with sulphur, the interior whitewashed, and lime sprinkled over the floor.

34. The following measures were adopted in cantonment :—All communication between the town (where cholera prevailed) and cantonment was cut off as far as practicable. All men, women, and children were strictly prohibited to enter the town. All supplies were procured from the town at certain times and sold in the regimental bazaar. Patrols were placed round the lines to prevent those within from leaving cantonment, and to prevent beggars and others without from entering the lines. Orders were issued to the effect that all cases of sickness occurring in cantonment were to be immediately reported. Some old buildings at one extremity of the cantonment, and at a distance from the lines, which are used in ordinary times in the treatment of small-pox and other infectious diseases, were converted into cholera hospitals. The buildings answered admirably, being well ventilated, raised, and isolated. Some cheap charpoys were specially made and placed in those hospitals. One Hospital Assistant, with the necessary medicines, &c., was stationed always in one of those buildings, his duty being only to attend to the cholera patients sent from the lines. Trenches were dug at some distance from the cholera buildings, and all discharges and filth buried and immediately covered over. Carbolic acid was constantly sprinkled over the floors of the cholera buildings. The moment a case of sickness was reported in the lines, there was another Hospital Assistant whose duty it was to go and see it at once, and if the case was one of cholera, it was immediately removed to the cholera hospital, and the hut, &c., of the affected person well fumigated, floor scraped, clothing boiled, and latrine, &c., disinfected. All persons attending on the sick in hospital were prohibited to enter the lines ; all messages and other requirements between the lines and cholera hospitals were carried on by bearers. Great care was taken in thoroughly cleansing all who had suffered from the disease previous to allowing them to enter the lines. The instructions in G. O. C. C., No. 193, dated 3rd August 1870, were carried out as far as practicable.

35. In the Banda Jail all communication with the town was cut off for a long time previous to the first case occurring in the jail ; the Police Guard and others were not changed, but always remained within the jail compound, receiving their food from the jail on payment. All interviews with the prisoners were stopped. All new prisoners, before entering the jail, had their hair cut, body and clothes well washed outside, and when they entered were kept in quarantine for eight days, after which time they were allowed to mix with the other prisoners. The quantity of salt allowed to each prisoner was doubled during the disease. There was a temporary shed erected in a garden outside the jail, and all cases immediately removed to it for treatment. In this shed were placed some cheaply-constructed cots. One Native Doctor constantly remained in this garden and attended to the cholera cases, while a second Native Doctor attended to the ordinary sickness of the jail. All bodies were carried over the garden wall, so as not to come near the jail building, by coolies from without, and buried with their clothes, beds, &c. Trenches were dug in the garden, into which all discharges and filth were immediately thrown and covered over. Each building in which a case occurred was whitewashed, leeped, disinfectants sprinkled about, and well fumigated with sulphur. Fires were kept burning in each barrack during the day, and during the night a number of short-sentenced prisoners were allowed to sleep outside under the work-sheds, in order to allow more space to the prisoners sleeping in the barracks.

36. On the 8th September the Magistrate granted 74 short-sentenced prisoners tickets of leave, as the jail was somewhat overcrowded, and from the 5th September till the 11th October no fresh prisoners were admitted into jail.

(Signed) J. McDERMOTT, Surgeon,
Hd.-Qrs. & Rt. Wg., H. M.'s 15th Regt. M.N.I.,
and Civil Surgeon of Banda.

BANDA,
1st November 1873.

STATISTICS

TABLE

Statement showing the Sickness and Invaliding

Divisions.	Regiments.	Stations.	1 Movements in the year.	2 A Average Daily Strength present during the year.	2 B Absent during the year.	2 C Total.	3 Remained.	3 Admitted.	3 Total Treated.	Deaths. 4 In Hospital.	Deaths. 5 Out of Hospital, i.e., in the Station, on Guard, on Command, on Leave or Furlough.	6 Average Daily Sick per Cent. to Average Strength.	7 Ratio per Cent. of the Total Treated to Average Strength.
Presidency.	Body Guard ...	Madras ...	None ...	115	...	115	6	101	107	...	2	3·47	93·04
	13th Regt. N.I...	Do. ...	Arrived 5th March. ...	652	164	816	10	650	660	3	3	3·68	101·22
	17th do. do..	Do. ...	None ...	694	13	707	4	483	487	1	1	1·87	70·17
	28th do. do...	Vellore ...	Do. ...	673	...	673	12	356	368	...	...	1·78	54·68
	37th do. do...	Madras ...	Do. ...	689	6	695	16	542	558	4	6	2·61	80·98
	39th do. do..	Palaveram ...	Arrived 16th March ...	676	13	689	19	547	566	1	1	2·81	83·72
	Totals, Ratio per Cent. to Totals, and Average of Presidency Division...			3,499	196	3,695	67	2,679	2,746	9	13	2·57	78·48
Northern.	2nd Regt. N. I., Right Wing.	Berhampore...	Arrived 9th January...	356	...	356	7	302	309	2	...	2·24	86·79
	2nd Regt. Left Wing.	Sumbulpore...	Arrived 5th February..	333	23	356	...	358	358	...	...	3·60	107·50
	7th Regt. N.I...	Vizagapatam.	Arrived 27th February..	657	46	703	25	514	539	4	2	4·71	82·03
	12th do. do...	Vizianagrum..	None ...	654	56	710	29	1,078	1,107	5	2	6·42	169·26
	41st do. do...	Cuttack ...	Do. ...	658	39	697	12	270	282	1	4	2·73	41·94
	Totals, Ratio per Cent. to Totals, and Average of Northern District...			2,658	164	2,822	73	2,522	2,595	12	8	4·17	97·62
Southern.	19th Regt. N.I...	Trichinopoly..	None ...	659	28	687	26	675	701	1	...	2·73	106·37
	32nd do. do...	Do. ...	Arrived 6th & 7th Feb.	659	22	681	19	973	992	2	2	2·73	150·53
	38th do. do...	Do. ...	None ...	640	2	642	8	425	433	3	6	2·03	67·65
	24th do. do..	Palamcottah..	Arrived 7th February..	549	146	695	14	666	680	1	2	3·09	123·86
	26th do. do...	Quilon ...	Arrived 19th January...	709	...	709	6	187	193	5	...	0·70	27·22
	Totals, Ratio per Cent. to Totals, and Average of Southern District...			3,216	198	3,414	73	2,926	2,999	12	10	2·20	93·25
Malabar & Canara.	9th Regt. N.I...	Cannanore ...	None ...	643	...	643	11	111	122	1	3	0·77	18·97
	25th do. do...	Do. ...	Do. ...	639	7	646	5	199	204	...	...	0·93	31·92
	34th do. do...	Mangalore ...	Do. ...	645	38	683	11	352	363	4	6	1·70	56·27
	Totals, Ratio per Cent. to Totals, and Average of Malabar and Canara...			1,927	45	1,972	27	662	689	5	9	1·14	35·75
Mysore.	Hd.-Qrs. S. & M.	Bangalore ...	None ...	918	...	918	54	841	895	4	2	2·50	97·49
	23rd Regt. N.I..	Do. ...	Do. ...	608	40	648	16	472	488	9	2	2·30	80·26
	36th do. do...	Do. ...	Do. ...	637	59	696	24	495	519	6	2	3·45	81·47
	30th do. do...	French Rocks	Do. ...	582	139	721	18	599	617	7	2	1·71	106·01
	Totals, Ratio per Cent. to Totals, and Average of Mysore Division...			2,745	238	2,983	112	2,407	2,519	26	8	2·51	91·76
Ceded Dists.	4th Regt. L.C...	Bellary ...	None ...	225	47	272	8	135	143	...	2	2·22	63·55
	4th do. N.I...	Do. ...	Do. ...	635	55	690	15	311	326	4	1	2·04	51·33
	21st do. do...	Do. ...	Arrived 29th November.	666	30	696	4	380	384	1	...	2·25	57·65
	Totals, Ratio per Cent. to Totals, and Average of Ceded Districts ...			1,526	132	1,658	27	826	853	5	3	2·16	55·89

N.B.—Returns of Detachments are incorporated in the

OF THE ARMY.

No. I.

in the Native Army of Madras for the year 1873.

Ratio of Deaths per Cent.			Invalided.		Constitution of the Regiment.						Strength borne on the Rolls of the Regiment on 31st December 1873.	Regiment.	Average Number of Consecutive Nights in Bed.	Remarks.
					Hindus.		Mussulmans.		Christians.					
8	9	10	11	12										
In Hospital to Treated.	In Hospital to Average Strength present.	Of Total Deaths, Columns 4 & 5 to Average Strength present.	For Discharge the Service.	For Temporary Change of Climate in India.	Strength.	Died during the year.	Strength.	Died during the year.	Strength.	Died during the year.				
...	...	1·73	...	11	8	...	112	2	7	...	127	Body Guard ...	3	
0·45	0·46	0·92	3	8	408	4	291	1	73	1	772	13th Regt. N. I.	4·08	
0·20	0·14	0·28	7	4	345	...	295	2	51	...	691	17th do. do...	3·17	
...	...	...	53	9	389	...	230	...	61	...	680	28th do. do...	4·6	
0·71	0·58	1·45	26	7	468	8	180	2	40	...	688	37th do. do...	2·80	
0·17	0·14	0·29	26	28	416	1	232	1	54	...	702	39th do. do...	1·50	One Wing at Moulmein and a Detachment at Saint Thomas' Mount.
0·32	0·25	0·62	115	67	2,034	13	1,340	8	286	1	3,660	.....	3·19	
0·64	0·56	0·56	1	2	200	1	140	1	16	...	356	2nd Regt. N. I. Rt. Wing ...	4·5	
...	...	...	...	...	210	...	125	...	22	...	357	2nd do. Left Wing ...	5·	
0·74	0·60	0·91	20	40	398	4	277	2	57	...	732	7th Regt. N.I.	4·42	
0·45	0·30	1·07	9	17	376	4	293	3	38	...	707	12th do. do.	6·75	
0·35	0·15	0·74	24	8	451	3	214	1	48	1	713	41st do. do.	6·	
0·46	0·45	0·75	54	67	1,635	12	1,049	7	181	1	2,865	.....	5·33	
0·14	0·15	0·15	8	16	390	...	233	1	60	...	683	19th Regt. N. I.	6·	
0·20	0·30	0·60	1	22	358	1	271	3	62	...	691	32nd do. do.	4·	
0·69	0·47	1·40	23	26	385	6	264	2	44	1	693	38th do. do.	5·27	
0·14	0·18	0·54	...	6	405	2	284	1	55	...	744	24th do. do.	7·81	
2·59	0·70	0·70	...	4	424	4	231	1	57	...	712	26th do. do.	5·	
0·40	0·37	0·68	32	74	1,962	13	1,283	8	278	1	3,523	.....	5·61	
0·81	0·15	0·62	...	7	373	...	224	3	62	1	659	9th Regt. N. I.	6·	
...	...	...	50	13	415	...	220	...	73	...	708	25th do. do.	6·5	
1·10	0·62	1·55	18	16	482	9	182	1	40	...	704	34th do. do.	9·	
0·72	0·25	0·72	68	36	1,270	9	626	4	175	1	2,071	.....	7·16	
0·44	0·43	0·65	9	14	647	4	58	2	213	...	918	Hd.-Qrs.S. & M.	5·	One Company at Rangoon.
1·84	1·48	1·80	18	8	418	9	201	...	86	2	705	23rd Regt. N. I.	3·5	
1·15	0·94	1·25	26	30	373	6	309	2	31	...	713	36th do. do.	5·	
1·13	1·20	1·54	...	4	336	5	306	4	49	...	691	30th do. do.	6·	One Company at Mysore.
1·03	0·94	1·23	53	56	1,774	24	874	8	379	2	3,027	.....	4·87	
...	...	0·88	15	4	42	...	213	2	13	...	268	4th Regt. L. C.	6·25	
1·22	0·62	0·78	10	13	379	3	279	2	52	...	710	4th do. N. I.	3·5	
0·26	0·15	0·15	...	1	381	1	259	...	57	...	697	21st do. do.	4·30	
0·58	0·32	0·52	25	18	802	4	751	4	122	...	1,675	.....	4·68	

Head-Quarter Returns except where otherwise noted.

STATISTICS

TABLE

Statement showing the Sickness, and Invaliding

Divisions.	Regiments.	Stations.	1 Movements in the year.	2 A Average Daily Strength present during the year.	2 B Absent during the year.	2 C Total.	3 Remained.	3 Admitted.	3 Total Treated.	Deaths. 4 In Hospital.	Deaths. 5 Out of Hospital, i.e., in the Station, on Guard, on Command, on Leave or Furlough.	6 Average Daily Sick per Cent. to Average Strength.	7 Ratio per Cent. of the Total Treated to Average Strength.
Hyderabad Subsy. Force.	1st Regt. L.C....	Secunderabad.	Arrived 6th February...	231	...	231	1	161	162	1	...	2·16	70·12
	3rd do. L.I. ...	Do. ...	None ...	687	...	687	22	1,131	1,153	4	4	4·94	167·83
	6th do. N.I. ...	Do. ...	Do. ...	662	26	688	26	425	451	4	1	2·41	68·12
	29th do. do. ...	Do. ...	Do. ...	684	20	704	13	410	423	2	2	2·63	61·84
	40th do. do. ...	Do. ...	Arrived 18th February...	643	...	643	12	753	765	9	2	3·73	118·97
	Dett. S. & M. ...	Do. ...	Do. ...	320	...	320	7	667	674	...	1	8·43	210·62
	Totals, Ratio per Cent. to Totals, and Average of Hyderabad Subsidiary Force...			3,227	46	3,273	81	3,547	3,628	20	10	3·84	112·42
Nagpore Force.	2nd Regt. L.C....	Kamptee ...	Arrived 12th February...	239	55	294	5	340	345	2	2	4·60	144·35
	35th do. N.I....	Do. ...	None ...	690	...	690	17	737	754	10	3	3·47	109·27
	8th do. do. ...	Seetabuldee ...	Arrived 6th & 7th December ...	633	51	684	15	748	763	4	4	3·47	120·53
	22nd do. do. ...	Hooshungabad.	Arrived 20th January ...	704	6	710	3	783	786	5	1	2·27	111·64
	31st do. do. ...	Raipore ...	Arrived 1st March ...	693	10	703	26	497	523	9	1	1·87	75·46
	Totals, Ratio per Cent. to Totals, and Average of Nagpore Force...			2,959	122	3,081	66	3,105	3,171	30	11	2·90	107·16
British Burmah Div.	14th Regt. N.I....	Rangoon ...	None ...	642	55	697	24	405	429	10	5	3·27	66·82
	1st do. do. ...	Thyetmyo ...	Do. ...	639	33	672	22	273	295	7	1	1·87	46·16
	10th do. do. ...	Tonghoo ...	Do. ...	632	53	685	20	799	819	5	8	4·43	12·95
	27th do. do. ...	Moulmein ...	Do. ...	569	16	585	38	1,085	1,123	5	13	4·92	197·36
	Totals, Ratio per Cent. to Totals, and Average of British Burmah Division ...			2,482	157	2,639	104	2,562	2,666	27	27	3·58	107·41
Saugor Circle.	3rd Regt. L.C....	Saugor ...	None ...	261	35	296	2	161	163	4	1	1·53	62·45
	5th do. N.I....	Do. ...	Arrived 10th January ...	688	10	698	8	737	745	2	2	2·76	108·28
	11th do. do. ...	Nagode ...	None ...	683	16	699	21	419	440	2	1	2·04	64·42
	20th do. do. ...	Banda ...	Arrived 15th Jan. 1874..	624	45	669	33	1,339	1,372	4	1	9·93	219·87
	16th do. do. ...	Jubbulpore ...	Arrived 20th & 21st Nov.	687	...	687	9	296	305	2	3	1·74	44·39
	15th do. Wing.	Nowgong ...	None ...	301	54	355	7	303	310	...	...	2·65	102·99
	Totals, Ratio per Cent. to Totals, and Average of Saugor Circle ...			3,244	160	3,404	80	3,255	3,335	14	8	3·66	102·80
Bengal.	33rd Regt. N.I....	Dorundah ...	None ...	679	35	714	6	142	148	5	2	0·88	21·79
	Totals, Ratio per Cent. to Totals, and Average of the whole Army ...			28,162	1493	29,655	716	24,633	25,349	165	109	2·91	90·01

OF THE ARMY.

No. I.—(*Continued.*)

in the Native Army of Madras for the year 1873.

Ratio of Deaths per Cent.			Invalided.		Constitution of the Regiment.						Strength borne on the Rolls of the Regiment on 31st December 1873.	Regiment.	Average Number of Consecutive Nights in Bed.	Remarks.
					Hindus.		Mussulmans.		Christians.					
8	9	10	11	12										
In Hospital to Treated.	In Hospital to Average Strength present.	Of Total Deaths, Columns 4 & 5 to Average Strength present.	For Discharge the Service.	For Temporary Change of Climate in India.	Strength.	Died during the year.	Strength.	Died during the year.	Strength.	Died during the year.				
0·61	0·43	0·43	4	4	28	...	193	1	20	...	241	1st Regt. L.C.	2·25	
0·34	0·58	1·16	18	10	363	6	245	2	93	...	701	3rd do. L.I.	5·	
0·88	0·60	0·75	8	...	422	2	224	1	57	2	703	6th do. N.I.	5·33	
0·47	0·92	0·58	10	4	387	3	268	1	52	...	707	29th do. do.	5·	
1·18	1·39	1·71	3	5	339	2	259	7	60	2	658	40th do. do.	4·	
...	...	0·31	2	3	260	1	15	...	77	...	352	Dett. S. & M.	6·	
0·55	0·61	0·92	45	26	1,799	14	1,204	12	359	4	3,362	.....	4·59	
0·57	0·83	1·67	11	6	45	1	201	3	13	...	259	2nd Regt. L.C.	3·25	
1·32	1·44	1·88	13	13	385	8	243	2	81	3	709	35th do. N.I.	3·5	
0·52	0·63	1·26	26	22	425	5	229	3	33	...	687	8th do. do.	5·75	
0·63	0·71	0·85	2	1	362	2	297	3	50	1	709	22nd do. do.	4·	
1·72	1·29	1·44	28	3	390	9	265	...	51	1	706	31st do. do.	4·	
0·94	1·01	1·38	80	45	1,607	25	1,235	11	228	5	3,070	.....	4·10	
2·33	15·57	2·33	...	32	407	9	248	6	42	...	697	14th Regt. N.I.	3·	
2·37	1·09	1·25	...	3	380	7	239	1	65	...	684	1st do. do.	5·	
0·61	0·79	2·05	1	40	409	7	250	5	53	1	712	10th do. do.	3·8	Detachment at Shoaygheen.
0·44	0·88	3·16	1	21	354	9	295	9	41	...	690	27th do. do.	3·	One Wing at Port Blair.
1·01	1·08	2·17	2	96	1,550	32	1,032	21	201	1	2,783	.....	3·93	
2·45	1·53	1·91	2	2	22	...	257	5	20	...	299	3rd Regt. L.C.	5·89	One Squadron at Jubbulpore.
0·26	0·29	0·58	20	6	406	1	236	3	54	...	696	5th do. N.I.	5·	
0·45	0·29	0·43	3	8	399	3	248	...	44	...	691	11th do. do.	6·	
0·29	0·64	0·80	25	23	347	3	251	1	81	1	679	20th do. do.	2·75	
0·65	0·29	0·72	30	12	346	2	269	2	83	1	698	16th do. do.	3·93	
...	...	...	...	4	200	...	120	...	36	...	356	15th do. Wing.	5·	Head-quarters and Wing at Banda.
0·41	0·43	0·67	80	55	1,720	9	1,381	11	318	2	3,419	.....	4·76	
3·37	0·73	1·03	24	...	374	2	295	5	33	...	702	33rd Regt. N.I.	9·75	
0·65	0·58	0·97	578	540	16,527	157	11,070	99	2,560	18	30,157	.....	4·79	

TABLE II.

Statement showing the Relative Ratios per Cent. of Treated and Deaths under the different Diseases in the several Divisions and Districts of the Army for the year 1873.

Divisions and Districts of the Army.	CLASSES OF DISEASES.																											
	GENERAL DISEASES.																				LOCAL DISEASES.							
	Sub-Division A.										Sub-Division B.																	
	Fevers.						Malignant Cholera, 18.		Other Diseases of this Class.		Rheumatic Affections, 34 to 42.		Syphilitic Affections, 43.		Scorbutic Affections, 54.		Dropsies, 57.		Other Diseases of this Class.		Diseases of the Nervous System, 59 to 104.		Insanity, 105 to 110.		Diseases of the Eye, 111 to 185.		Diseases of the Heart, 219 to 244 and 250 to 258.		Diseases of the Lungs, 290 to 337.	
	Eruptive, 1 to 5.		Continued, 6 to 14.		Malarious, 15 and 16.																								
	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.
Presidency	0·80	...	11·68	...	19·55	0·37	...	...	0·14	...	7·31	0·99	1·56	...	0·07	100·00	0·07	50·00	1·23	5·88	1·34	8·10	0·25	...	2·62	...	0·25	14·28	3·09	4·50
Northern	0·07	...	24·93	0·46	14·56	...	...	...	0·03	...	6·43	...	0·80	...	...	...	0·53	...	2·77	5·55	0·50	23·07	0·11	...	3·39	...	0·11	...	4·66	1·65
Southern	4·36	...	36·24	0·09	17·50	0·57	...	...	0·03	...	3·73	...	1·46	2·27	...	...	0·10	...	0·66	5·00	0·96	3·44	0·20	...	2·26	...	0·40	25·00	3·03	3·29
Malabar and Canara ...	0·71	...	3·19	...	15·09	...	...	...	0·87	...	8·12	...	1·88	...	...	...	...	...	1·16	25·00	0·58	...	0·43	...	2·90	...	0·72	20·00	5·07	2·85
Mysore	4·72	...	19·17	0·41	26·002	10·68	...	...	0·07	...	4·92	...	1·34	2·64	0·07	...	0·15	...	0·79	20·00	1·07	3·70	0·23	33·33	4·48	...	0·31	12·50	2·50	11·11
Ceded Districts ...	1·17	...	9·38	...	19·22	0·60	...	...	0·35	...	7·24	...	2·11	...	0·23	50·00	0·23	...	0·70	33·33	0·93	...	0·35	...	9·73	...	0·23	100·00	2·34	...
Hyderabad Subsidiary Force	0·27	...	1·90	2·89	50·46	0·27	...	...	0·16	16·66	6·28	...	1·04	...	...	...	0·08	66·66	0·77	10·71	1·24	...	0·11	...	2·48	...	0·16	16·66	3·16	6·08
Nagpore Force ...	0·75	4·16	19·77	0·31	2·73	0·46	...	...	6·78	2·32	3·94	...	0·47	...	0·06	...	0·22	...	0·59	26·31	0·53	5·88	0·15	...	4·60	...	0·22	42·85	2·36	8·00
British Burmah Division	0·03	...	0·26	...	41·22	0·27	0·03	100·00	0·03	...	7·98	0·46	0·67	...	...	...	1·08	13·79	0·63	5·88	1·01	11·11	0·18	...	1·80	...	0·26	42·85	3·33	5·61
Saugor Circle	1·07	2·77	29·02	...	30·82	0·29	0·02	100·00	0·68	...	4·43	...	0·74	...	...	...	...	...	0·50	11·76	0·35	...	0·29	...	5·63	...	0·92	...	1·91	6·25
Dorundah	3·37	...	...	...	60·81	4·44	...	...	...	...	14·86	4·54	0·67	...	...	...	0·67	...	...	...	0·67	...	...	...	...	...	...	...	5·40	12·50
Total showing the Percentage of the different Diseases to the whole Total Treated...	1·43	...	17·006	...	28·71	...	0·007	...	1·03	...	5·75	...	1·06	...	0·03	...	0·25	...	0·95	...	0·86	...	0·20	...	3·61	...	0·34	...	3·02	...
Mortality. The Total Percentage of Deaths from each Disease to the Total of each Disease treated ...	...	0·54	...	0·23	...	0·43	...	100	...	2·29	...	0·27	...	0·74	...	37·50	...	10·76	...	12·03	...	5·45	...	3·84	...	...	...	18·18	...	4·96
Total showing the Ratio per Cent. of Treated and Deaths under the several Diseases to the Daily Average Strength.	1·29	0·07	15·30	0·03	25·84	0·11	0·007	0·007	0·93	0·02	5·17	0·01	0·95	0·007	0·02	0·01	0·23	0·02	0·85	0·10	0·78	0·04	0·18	0·007	3·25	...	0·31	0·05	2·71	0·13

N.B.—The numbers quoted are those of the "Nomenclature of Diseases."
Column "T" shows the percentage of treated to the total treated under the several diseases in each division or district.
Column "D" (deaths) shows the percentage to the total mortality to the total treated of each disease.

TABLE II.—(*Continued.*)

Statement showing the Relative Ratios per Cent. of Treated and Deaths under the different Diseases in the several Divisions and Districts of the Army for the year 1873.

Divisions and Districts of the Army.	CLASSES OF DISEASES.																											
	LOCAL DISEASES.—(Continued.)																		Old Age and Debility, 904 and 905.		Poisons, 906 to 991.		INJURIES.				All Other Diseases.	
	Diseases of the Stomach and Intestines, 449 to 500.						Diseases of the Liver, 501 to 520.		Diseases of the Spleen, 524 to 530.		Gonorrhœa, 585 to 594.		Abscess, 819, and elsewhere according to site.		Ulcer, 859.		Skin Diseases, 827 to 901.		Other Diseases of this Class.						Injuries, 992 to 1146, and Blisters of Feet 1148.		Punishment.			
	Diarrhœa.		Dysentery.		Other Diseases of this Class.																							
	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.
Presidency	3·86	...	4·36	1·66	3·42	1·06	0·32	11·11	0·10	...	1·49	...	2·98	...	3·86	...	16·53	...	4·66	0·78	2·80	2·59	0·14	...	5·20	...	...	...	0·18	...
Northern	2·19	...	2·89	2·66	4·73	...	0·30	12·5	...	...	1·07	...	2·62	...	1·92	...	15·14	...	1·001	...	3·35	1·14	0·07	...	3·93	0·98	0·19	...	1·57	7·31
Southern	2·13	6·25	2·60	...	1·70	3·92	0·36	...	0·03	...	0·43	...	1·76	1·88	2·06	...	6·76	...	1·66	...	3·76	1·76	0·13	...	4·40	...	0·06	...	1·10	...
Malabar and Canara ...	2·46	...	5·66	5·12	2·75	5·26	0·29	...	...	...	0·87	...	4·64	...	5·07	...	17·27	...	7·11	4·08	6·24	6·97	0·43	...	6·09	...	0·29	...	...	...
Mysore	1·98	4·00	1·82	6·52	2·06	...	0·31	...	0·11	...	0·63	...	2·77	...	2·93	...	8·21	...	2·35	...	3·85	1·03	0·23	...	6·07	1·30	0·11	...	0·07	50·00
Ceded Districts ...	3·39	...	3·63	...	4·33	...	0·35	33·33	0·35	...	0·35	...	4·68	...	2·81	...	6·79	...	2·22	...	3·39	...	...	...	13·13	...	0·11	...	0·11	100·00
Hyderabad Subsidiary Force	1·73	1·58	1·46	...	1·79	1·53	0·52	5·26	0·55	...	0·35	...	2·47	1·11	3·39	...	5·59	...	3·05	2·70	1·90	2·89	0·13	...	8·15	...	...	...	0·66	...
Nagpore Force... ...	3·31	0·95	2·83	3·33	3·09	2·04	0·28	...	0·06	...	0·31	...	1·82	...	2·45	...	6·87	...	2·14	...	2·33	4·05	0·06	...	6·14	1·02	...	...	0·40	23·07
British Burmah Division	5·96	3·14	7·27	0·51	3·97	0·94	0·30	37·50	0·82	...	1·01	...	0·33	...	2·92	...	6·26	...	1·72	...	2·88	6·49	0·07	...	6·60	...	0·07	...	1·16	48·38
Saugor Circle	1·13	...	1·19	7·50	3·35	0·89	0·17	16·66	0·02	...	0·65	...	1·10	...	2·18	...	3·26	...	2·51	1·19	1·67	...	0·08	...	5·15	1·74	0·20	...	0·71	8·33
Dorundah	4·06	...	4·06	...	...	...	...	...	...	...	...	...	...	...	...	...	2·02	...	...	...	1·35	...	...	...	2·02	...	...	...	...	...
Total showing the Percentage of the different Diseases to the whole Total Treated...	2·73	...	3·04	...	2·98	...	0·32	...	0·21	...	0·70	...	2·12	...	2·77	...	8·41	...	2·57	...	2·85	...	0·12	...	6·01	...	0·08	...	0·68	...
Mortality. The Total Percentage of Deaths from each Disease to the Total of each Disease treated ...	...	1·87	...	2·07	...	1·18	...	9·63	...	...	...	...	...	0·37	...	...	...	...	...	1·07	...	2·62	...	...	...	0·52	...	...	...	15·51
Total showing the Ratio per Cent. of Treated and Deaths under the several Diseases to the Daily Average Strength.	2·46	0·04	2·74	0·05	2·68	0·03	0·29	0·02	0·19	...	0·63	...	1·91	0·007	2·49	...	7·57	...	2·31	0·02	2·57	0·06	0·11	...	5·41	0·02	0·07	...	0·61	0·09

N.B.—The numbers quoted are those of the "Nomenclature of Diseases."
Column "T" shows the percentage of treated to the total treated under the several diseases in each division or district.
Column "D" (deaths) shows the percentage to the total mortality to the total treated of each disease.

TABLE III.

Statement showing the Remained, Admitted, Discharged, Died, &c., under the different Diseases in the several Divisions and Districts of the Native Army during 1873.

	General Diseases.										Local Diseases.																					
	Sub-Division A.					Sub-Division B.																										
	Fevers.																															
	Eruptive, 1 to 5.	Continued, 6 to 14.	Malarious, 15 and 16.	Malignant Cholera, 18.	Other Diseases of this Class.	Rheumatic Affections, 34 to 42.	Syphilitic Affections, 43.	Scorbutic Affections, 54.	Dropsies, 57.	Other Diseases of this Class.	Diseases of the Nervous System, 59 to 104.	Insanity, 105 to 110.	Diseases of the Eye, 111 to 185.	Diseases of the Heart, 219 to 244 and 250 to 258.	Diseases of the Lungs, 290 to 337.	Diseases of the Stomach and Intestines, 449 to 500.			Diseases of the Liver, 501 to 520.	Diseases of the Spleen, 524 to 530.	Gonorrhœa, 585 to 594.	Abscess, 819 and elsewhere according to site.	Ulcer, 859.	Skin Diseases, 827 to 901.	Other Diseases of this Class.	Old Age and Debility, 904 and 905.	Poisons, 906 to 991.	Injuries.		All other Diseases.	Total.
																Diarrhœa.	Dysentery.	Other Diseases of this Class.										Injuries, 992 to 1146, and Blistered Feet, 1148.	Punishment.		
Strength 3,499.											**Presidency Division.**																				**Average Daily Sick 90.**	
Remained sick on 1st January 1873 ...	...	1	17	...	...	5	...	...	...	...	3	1	2	...	4	1	4	2	...	...	...	4	5	8	5	1	...	4	...	...	67
Admitted during the year	22	320	520	...	4	196	43	2	2	34	34	6	70	7	81	105	116	92	9	3	41	78	101	446	123	76	4	139	...	5	2,679
Total Treated ...	22	321	537	...	4	201	43	2	2	34	37	7	72	7	85	106	120	94	9	3	41	82	106	454	128	77	4	143	...	5	2,746
Discharged cured during the year ...	19	317	500	...	3	175	37	...	1	23	22	2	60	2	72	98	113	83	7	2	35	75	104	430	116	47	3	140	...	1	2,487
Discharged "otherwise" during the year.	3	4	18	...	...	17	4	...	...	9	12	5	7	5	10	5	2	8	1	...	4	2	2	6	5	25	...	2	...	4	160
Died in hospital during the year	...	...	...	...	...	...	...	1	1	1	2	...	...	...	..	...	2	1	...	...	...	...	...	...	...	1	...	...	...	...	9
Remaining on 31st December 1873 ...	...	...	19	...	1	9	2	1	...	1	1	...	5	...	3	3	3	2	1	1	2	5	...	18	7	4	1	1	...	..	90
Total ...	22	321	537	...	4	201	43	2	2	34	37	7	72	7	85	106	120	94	9	3	41	82	106	454	128	77	4	143	...	5	2,746
Invalided during the year...	...	...	5	...	...	5	1	...	...	5	3	1	4	5	4	...	1	2	...	...	...	...	...	1	21	56	...	..	..	1	115
Obtained sick leave during the year ...	...	2	10	...	...	9	2	...	...	7	7	...	...	2	6	2	1	3	...	...	...	1	1	1	3	10	...	...	...	...	67
Died out of hospital during the year ...	...	...	2	...	...	2	...	1	...	1	1	...	...	1	2	...	...	...	1	...	...	...	...	...	1	1	...	...	...	...	13
Strength 2,658.											**Northern Districts.**																				**Average Daily Sick 111.**	
Remained sick on 1st January 1873 ...	...	1	12	...	...	10	1	...	...	5	1	1	1	...	2	2	5	2	...	...	1	1	2	9	4	9	...	3	...	1	73
Admitted during the year	2	646	366	...	1	157	20	...	14	67	12	2	87	3	119	55	70	121	8	...	27	67	48	384	22	78	2	99	5	40	2,522
Total Treated ...	2	647	378	...	1	167	21	...	14	72	13	3	88	3	121	57	75	123	8	...	28	68	50	393	26	87	2	102	5	41	2,595

Discharged cured	2	627	360	...	1	129	17	...	13	31	10	2	82	1	97	56	71	110	6	...	23	65	47	373	22	58	2	96	3	32	2,336
Discharged "otherwise"	...	11	6	...	...	22	1	...	1	18	1	1	3	1	8	...	1	4	...	...	2	1	...	4	1	21	...	...	1	3	111
Died in hospital	...	3	...	...	...	...	...	...	...	3	2	...	...	...	1	...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	12
Remaining on 31st December 1873 ...	...	6	12	...	...	16	3	...	...	20	...	...	3	1	15	1	2	9	1	...	3	2	3	16	3	7	...	6	1	6	136
Total ...	2	647	378	...	1	167	21	...	14	72	13	3	88	3	121	57	75	123	8	...	28	68	50	393	26	87	2	102	5	41	2,595
Invalided	...	...	...	...	...	5	...	...	...	4	...	...	2	3	2	...	...	1	...	...	1	...	1	2	1	25	..	...	...	7	54
Sick leave	...	9	4	...	...	16	1	...	1	13	...	...	...	...	7	...	1	...	...	...	...	1	...	4	...	7	...	...	...	3	67
Died out of hospital...	...	...	..	...	...	...	...	...	...	1	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	3	8
Strength 3,216.								Southern District.																						Average Daily Sick 71.	
Remained sick on 1st January 1873 ...	...	11	12	...	...	4	4	...	...	1	1	1	...	2	4	...	...	2	1	...	2	2	4	5	6	2	1	8	...	...	73
Admitted during the year	131	1,076	513	...	1	108	40	..	3	19	28	5	68	10	87	64	78	49	10	1	11	51	58	198	44	111	3	124	2	33	2,926
Total Treated ...	131	1,087	525	...	1	112	44	...	3	20	29	6	68	12	91	64	78	51	11	1	13	53	62	203	50	113	4	132	2	33	2,999
Discharged cured	131	1,079	505	...	1	102	36	...	3	12	25	5	63	9	84	58	75	48	9	1	13	51	55	191	40	107	4	127	2	32	2,868
Discharged "otherwise"	...	7	9	...	...	4	5	...	...	3	3	1	3	1	4	1	...	1	2	...	...	...	3	2	5	3	...	2	...	1	60
Died in hospital	...	1	1	...	...	...	...	...	...	...	1	...	...	1	2	2	...	2	...	...	...	1	...	...	...	1	...	...	...	...	12
Remaining on 31st December 1873. ...	...	...	10	...	...	6	3	...	...	5	...	...	2	1	1	3	3	...	...	...	...	1	4	10	5	2	...	3	...	...	59
Total ...	131	1,087	525	...	1	112	44	...	3	20	29	6	68	12	91	64	78	51	11	1	13	53	62	203	50	113	4	132	2	33	2,999
Invalided	...	2	...	...	...	...	3	...	...	2	1	1	3	...	3	...	...	...	...	...	...	..	...	...	15	2	...	...	...	...	32
Sick leave	...	...	4	...	...	5	2	...	...	6	5	1	...	2	8	6	9	.2	...	...	...	...	3	1	2	18	...	...	...	...	74
Died out of hospital...	...	...	2	...	...	...	1	...	...	1	...	...	...	2	1	2	...	...	...	...	...	..	...	...	...	1	...	...	...	...	10
Strength 1,927.								Malabar and Canara.																						Average Daily Sick 22.	
Remained sick on 1st January 1873 ...	...	...	3	...	...	4	2	...	...	1	...	...	...	1	...	...	3	1	...	...	3	...	1	3	2	2	...	1	...	...	27
Admitted during the year	5	22	101	...	6	52	11	...	...	7	4	3	20	4	35	17	36	18	2	...	3	32	34	116	47	41	3	41	2	...	662
Total Treated ...	5	22	104	...	6	56	13	...	...	8	4	3	20	5	35	17	39	19	2	...	6	32	35	119	49	43	3	42	2	...	689
Discharged cured	5	21	94	...	4	49	11	...	...	4	3	2	17	2	24	15	36	16	2	...	6	32	33	111	43	35	3	37	...	...	605
Discharged "otherwise"	...	...	9	...	...	3	1	...	...	2	...	1	1	2	7	2	2	1	...	...	...	...	1	1	4	6	...	1	2	...	46
Died in hospital	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	5
Remaining on 31st December 1873 ...	...	1	1	...	2	4	1	...	...	1	1	...	2	...	3	...	...	2	...	...	...	...	1	7	1	2	...	4	...	...	33
Total ...	5	22	104	...	6	56	13	...	...	8	4	3	20	5	35	17	39	19	2	...	6	32	35	119	49	43	3	42	2	...	689

TABLE III.—(*Continued.*)

***Statement showing the Remained, Admitted, Discharged, Died, &c., under the different Diseases in the several Divisions and Districts of the Native Army during* 1873.**

—	General Diseases.										Local Diseases.																		Injuries.			
	Sub-Division A.						Sub-Division B.																									
	Fevers.																															
	Eruptive, 1 to 5.	Continued, 6 to 14.	Malarious, 15 and 16.	Malignant Cholera, 18.	Other Diseases of this Class.	Rheumatic Affections, 34 to 42.	Syphilitic Affections, 43.	Scorbutic Affections, 54.	Dropsies, 57.	Other Diseases of this Class.	Diseases of the Nervous System, 59 to 104.	Insanity, 105 to 110.	Diseases of the Eye, 111 to 185.	Diseases of the Heart, 219 to 244 and 250 to 258.	Diseases of the Lungs, 290 to 337.	Diseases of the Stomach and Intestines, 449 to 500.			Diseases of the Liver, 501 to 520.	Diseases of the Spleen, 524 to 530.	Gonorrhœa, 585 to 594.	Abscess, 819, and elsewhere according to site.	Ulcer, 859.	Skin Diseases, 827 to 901.	Other Diseases of this Class.	Old Age and Debility, 904 and 905.	Poisons, 906 to 991.	Injuries, 992 to 1146, and Blistered Feet, 1148.	Punishment.	All other Diseases.	Total.
																Diarrhœa.	Dysentery.	Other Diseases of this Class.													
Invalided	...	...	...	...	...	10	4	...	...	2	1	...	...	1	4	...	...	...	...	...	...	...	...	4	33	9	...	...	...	68
Sick leave	...	...	7	...	1	2	1	...	...	2	...	...	...	2	3	1	3	1	...	...	...	...	1	...	3	9	...	...	...	...	36
Died out of hospital	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	3	...	...	...	2	9
Strength 2,745											Mysore Division.																		Average Daily Sick 69.			
Remained sick on 1st January 1873 ...	...	32	13	...	...	7	5	1	...	1	2	1	4	...	4	4	2	2	...	...	3	5	7	12	5	...	...	2	...	...	112
Admitted during the year	119	451	642	...	2	117	29	1	4	19	25	5	109	8	59	46	44	50	8	3	13	65	67	195	67	97	6	151	3	2	2,407
Total Treated ...	119	483	655	...	2	124	34	2	4	20	27	6	113	8	63	50	46	52	8	3	16	70	74	207	72	97	6	153	3	2	2,519
Discharged cured	119	479	626	...	2	102	29	2	3	7	21	3	107	5	50	46	43	46	6	2	15	69	70	204	57	65	6	148	3	...	2,335
Discharged "otherwise"	...	2	13	...	...	22	4	...	...	8	4	3	5	2	6	1	...	5	1	1	1	1	3	2	13	31	...	4	...	2	134
Died in hospital	...	2	7	...	...	...	...	...	...	4	1	...	...	1	6	1	3	...	...	...	...	...	...	...	...	...	...	1	...	...	26
Remaining on 31st December 1873 ...	...	...	9	...	...	...	1	...	1	1	1	...	1	...	1	2	...	1	1	...	...	...	1	1	2	1	...	...	...	...	24
Total ...	119	483	655	...	2	124	34	2	4	20	27	6	113	8	63	50	46	52	8	3	16	70	74	207	72	97	6	153	3	2	2,519
Invalided	...	...	...	...	...	4	1	1	...	4	2	1	2	1	2	...	...	4	...	...	...	...	3	...	6	22	...	...	...	...	53
Sick leave	...	...	5	...	1	9	4	...	...	3	2	...	1	...	4	1	...	3	2	1	...	2	1	...	6	11	...	...	...	...	56
Died out of hospital	...	...	...	...	...	...	1	...	...	...	...	2	...	...	1	1	...	...	...	...	...	...	...	...	...	1	...	1	...	1	8

Strength 1,526. — Ceded Districts. — Average Daily Sick 33.

Remained sick on 1st January 1873 ...	...	2	8	...	...	3	2	...	...	...	...	...	...	...	2	...	...	1	...	...	...	1	...	4	1	1	...	2	...	...	27
Admitted during the year	10	78	156	...	3	59	16	2	2	6	8	3	83	2	18	29	31	36	3	3	3	39	24	54	18	28	...	110	1	1	826
Total Treated ...	10	80	164	...	3	62	18	2	2	6	8	3	83	2	20	29	31	37	3	3	3	40	24	58	19	29	...	112	1	1	853
Discharged cured	10	77	153	...	3	50	12	...	1	3	6	2	82	...	15	28	31	36	2	1	2	39	24	56	11	14	...	107	1	...	766
Discharged "otherwise"	...	3	7	...	...	8	3	...	...	2	2	1	1	1	5	...	...	1	...	...	1	...	...	1	6	12	...	5	...	1	60
Died in hospital	...	...	1	...	...	...	...	1	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	5
Remaining on 31st December 1873	...	...	3	...	...	4	3	1	1	...	...	...	...	...	...	1	...	...	...	2	...	1	...	1	2	3	...	...	...	...	22
Total ...	10	80	164	...	3	62	18	2	2	6	8	3	83	2	20	29	31	37	3	3	3	40	24	58	19	29	...	112	1	1	853
Invalided	...	...	3	...	...	3	...	...	...	3	...	...	1	2	...	...	...	2	...	...	...	...	...	...	4	6	...	1	...	...	25
Sick leave	...	...	3	...	...	6	2	..	...	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	18
Died out of hospital	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3

Strength 3,227. — Hyderabad Subsidiary Force. — Average Daily Sick 124.

Remained sick on 1st January 1873 ...	...	7	7	...	...	11	5	...	1	2	3	1	...	...	4	3	2	3	1	1	...	4	9	2	6	1	...	8	...	...	81
Admitted during the year	10	62	1,825	...	6	217	33	...	2	26	42	3	90	6	111	60	51	62	18	19	13	86	114	201	105	68	5	288	...	24	3,547
Total Treated ...	10	69	1,832	...	6	228	38	...	3	28	45	4	90	6	115	63	53	65	19	20	13	90	123	203	111	69	5	296	...	24	3,628
Discharged cured	9	56	1,767	...	5	204	31	...	...	13	35	1	87	4	78	60	50	60	15	13	11	81	115	185	83	39	3	277	...	20	3,302
Discharged "otherwise"	...	5	21	...	1	11	3	...	1	9	7	3	2	...	20	1	...	1	1	3	2	5	3	1	9	17	1	4	...	3	134
Died in hospital	...	...	5	...	...	...	...	...	2	3	...	...	...	...	5	1	...	1	1	..	...	...	...	...	1	1	...	...	...	...	20
Remaining sick on 31st December 1873 ...	1	8	39	...	...	13	4	...	...	3	3	...	1	2	12	1	3	3	2	4	...	4	5	17	18	12	1	15	...	1	172
Total ...	10	69	1,832	...	6	228	38	...	3	28	45	4	90	6	115	63	53	65	19	20	13	90	123	203	111	69	5	296	...	24	3,628
Invalided	...	1	2	...	...	8	2	...	...	5	3	...	1	...	6	1	...	...	...	...	...	2	...	...	2	9	...	3	...	...	45
Sick leave	...	...	2	...	...	1	1	...	1	4	3	...	...	...	4	...	...	...	1	3	...	...	...	...	1	5	...	...	...	...	26
Died out of hospital	...	2	...	...	1	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	...	1	...	...	2	1	...	...	...	...	10

Strength 2,959. — Nagpore Force. — Average Daily Sick 86.

Remained sick on 1st January 1873 ...	...	8	16	...	...	2	2	...	...	3	...	1	1	1	6	1	1	1	1	...	...	3	1	7	...	5	...	5	...	1	66
Admitted during the year	24	619	851	...	215	123	13	2	7	16	17	4	145	6	69	104	89	97	8	2	10	55	77	211	68		2	190	...	12	3,105
Total Treated ...	24	627	867	...	215	125	15	2	7	19	17	5	146	7	75	105	90	98	9	2	10	58	78	218	68	69 74	2	195	...	13	3,171

TABLE III.—(*Continued.*)

***Statement showing the Remained, Admitted, Discharged, Died, &c., under the different Diseases in the several Divisions and Districts of the Native Army during* 1873.**

—	General Diseases.										Local Diseases.																	Injuries.			
	Sub-Division A.					Sub-Division B.																									
	Fevers.																														
	Eruptive, 1 to 5.	Continued, 6 to 14.	Malarious, 15 and 16.	Malignant Cholera, 18.	Other Diseases of this Class.	Rheumatic Affections, 34 to 42.	Syphilitic Affections, 43.	Scorbutic Affections, 54.	Dropsies, 57.	Other Diseases of this Class.	Diseases of the Nervous System, 59 to 104.	Insanity, 105 to 110.	Diseases of the Eye, 111 to 185.	Diseases of the Heart, 219 to 244 and 250 to 258.	Diseases of the Lungs, 290 to 337.	Diseases of the Stomach and Intestines, 449 to 500.			Diseases of the Liver, 501 to 520.	Diseases of the Spleen, 524 to 530.	Gonorrhœa, 585 to 594.	Abscess, 819, and elsewhere according to site.	Ulcer, 859.	Skin Diseases, 827 to 901.	Other Diseases of this Class.	Old Age and Debility, 904 and 905.	Poisons, 906 to 991.	Injuries, 992 to 1146, and Blistered Feet, 1148.	Punishment.	All other Diseases.	Total.
																Diarrhœa.	Dysentery.	Other Diseases of this Class.													
Discharged cured	23	613	817	...	209	117	15	2	3	10	12	4	144	5	52	103	78	91	8	2	10	52	74	206	61	57	2	191	...	12	2,973
Discharged "otherwise"	1	12	22	...	1	5	...	...	4	1	4	1	...	1	19	1	7	5	1	...	...	3	3	5	7	8	...	...	...	...	111
Died in hospital	...	2	3	...	5	...	...	...	...	4	1	...	...	1	3	1	2	2	...	...	...	...	...	...	..	3	...	2	...	1	30
Remaining sick on 31st December 1873...	...	...	25	...	...	3	...	...	...	4	...	...	2	...	1	...	3	..	...	...	...	3	1	7	...	6	...	2	...	...	57
Total ...	24	627	867	...	215	125	15	2	7	19	17	5	146	7	75	105	90	98	9	2	10	58	78	218	68	74	2	195	...	13	3,171
Invalided	...	...	...	...	...	2	2	...	...	4	2	2	2	4	1	...	...	...	...	...	...	...	1	...	2	56	...	...	...	2	80
Sick leave	1	1	6	...	...	3	...	...	3	...	1	1	...	...	15	...	2	3	...	...	...	1	...	...	...	7	...	1	...	..	45
Died out of hospital	1	...	1	...	...	...	...	...	...	1	...	...	...	2	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	11
Strength 2,482.											**British Burmah Division.**															**Average Daily Sick 89.**					
Remained sick on 1st January 1873 ...	...	1	26	...	...	16	...	...	3	1	...	1	...	...	10	5	3	1	...	3	3	2	1	5	4	12	...	6	...	1	104
Admitted during the year	1	6	1,073	1	1	197	18	...	26	16	27	4	48	7	79	154	191	105	8	19	24	7	77	162	42	65	2	170	2	30	2,562
Total Treated ...	1	7	1,099	1	1	213	18	...	29	17	27	5	48	7	89	159	194	106	8	22	27	9	78	167	46	77	2	176	2	31	2,666

Discharged cured	1	7	1,061	...	1	190	13	...	17	7	17	3	40	4	74	150	177	95	4	21	23	9	74	162	38	56	2	167	2	30	2,445
Discharged " otherwise "	...	...	26	...	...	11	1	...	2	8	4	2	8	1	13	4	17	8	...	1	1	...	3	3	3	14	...	1	...	1	132
Died in hospital	...	...	2	1	...	1	...	...	4	1	3	...	...	2	2	4	...	1	3	...	...	...	...	...	...	3	...	...	...	...	27
Remaining on 31st December 1873 ...	...	...	10	...	...	11	4	...	6	1	3	...	...	...	...	1	...	2	1	...	3	...	1	2	5	4	...	8	...	...	62
Total ...	1	7	1,099	1	1	213	18	...	29	17	27	5	48	7	89	159	194	106	8	22	27	9	78	167	46	77	2	176	2	31	2,666
Invalided	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	2
Sick leave	...	...	12	...	...	9	1	...	2	8	2	2	7	1	10	3	15	4	...	1	...	...	1	2	1	14	...	...	...	1	96
Died out of hospital	...	...	1	...	...	...	...	...	...	3	...	...	...	1	3	1	1	...	...	...	...	...	...	...	...	2	...	...	...	15	27

Strength 3,244. Saugor Division. Average Daily Sick 119.

Remained sick on 1st January 1873 ...	...	7	19	...	1	9	...	...	...	3	1	...	3	...	2	1	...	...	...	...	3	...	9	4	3	9	...	6	...	...	80
Admitted during the year	36	961	1,009	1	22	139	25	...	...	14	11	10	185	31	62	37	40	112	6	1	19	37	64	105	81	47	3	166	7	24	3,255
Total Treated ...	36	968	1,028	1	23	148	25	...	...	17	12	10	188	31	64	38	40	112	6	1	22	37	73	109	84	56	3	172	7	24	3,335
Discharged cured	34	939	983	...	23	118	18	...	...	8	9	6	181	19	50	37	37	106	3	1	18	35	65	105	75	28	2	165	7	11	3,083
Discharged " otherwise "	1	27	10	...	...	26	5	...	...	7	1	4	2	12	5	...	...	4	1	...	1	1	4	1	2	26	1	2	...	11	154
Died in hospital	1	...	2	1	...	...	...	...	...	2	...	...	...	...	2	...	3	1	1	...	...	...	...	...	1	...	...	...	...	...	14
Remaining on 31st December 1873 ...	...	2	33	...	...	4	2	...	...	...	2	...	5	...	7	1	...	1	1	...	3	1	4	3	6	2	...	5	...	2	84
Total ...	36	968	1,028	1	23	148	25	...	...	17	2	10	188	31	64	38	40	112	6	1	22	37	73	109	84	56	3	172	7	24	3,335
Invalided	...	6	...	...	...	11	4	...	...	3	...	2	1	9	5	...	...	...	...	...	1	...	1	1	...	32	...	...	...	4	80
Sick leave	...	1	9	...	...	6	1	...	...	2	1	...	2	7	2	...	...	2	...	...	2	...	4	2	1	12	...	1	...	...	55
Died out of hospital...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	3	...	2	8

Strength 679. Bengal. Average Daily Sick 6.

Remained sick on 1st January 1873 ...	...	...	3	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	..	...	...	6
Admitted during the year	5	...	87	...	...	21	1	...	1	...	1	...	...	...	8	6	6	...	...	...	...	...	...	2	...	1	...	3	...	...	142
Total Treated ...	5	...	90	...	...	22	1	...	1	...	1	...	...	...	8	6	6	...	...	...	...	...	...	3	...	2	...	3	...	...	148
Discharged cured	5	...	81	...	...	18	1	...	1	...	1	...	...	...	7	6	6	...	...	...	...	...	...	3	...	1	...	3	...	...	133
Discharged "otherwise"	...	...	1	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Died in hospital	...	...	4	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Remaining on 31st December 1873 ...	...	...	4	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	6
Total ...	5	...	90	...	...	22	1	...	1	...	1	...	...	...	8	6	6	...	...	...	...	...	...	3	...	2	...	3	...	...	148
Invalided	...	...	...	...	...	6	...	...	...	2	1	...	1	1	1	...	...	...	...	...	...	...	...	...	...	12	...	...	...	...	24
Sick leave	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
Died out of hospital...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2

TABLE IV.

Statement showing the Remained, Admitted, Discharged, Died, &c., under the different Diseases among the Native Army of Madras during the year 1873.

Strength 28,162. Average Daily Sick 820.

—	CLASSES OF DISEASES.																													
	General Diseases.										Local Diseases.																Injuries.			
	Sub-Division A.					Sub-Division B.																								
	Fevers.																													
	Eruptive, 1 to 5.	Continued, 6 to 14.	Malarious, 15 and 16.	Malignant Cholera, 18.	Other Diseases of this Class.	Rheumatic Affections, 34 to 42.	Syphilitic Affections, 43.	Scorbutic Affections, 54.	Dropsies, 57.	Other Diseases of this Class.	Diseases of the Nervous System, 59 to 104.	Insanity, 105 to 110.	Diseases of the Eye, 111 to 185.	Diseases of the Heart, 219 to 244, and 250 to 268.	Diseases of the Lungs, 290 to 337.	Diseases of the Stomach and Intestines, 449 to 500.			Diseases of the Liver, 501 to 520.	Diseases of the Spleen, 524 to 530	Gonorrhœa, 585 to 594.	Abscess, 819, and elsewhere according to site.	Ulcer, 859.	Skin Diseases, 827 to 901.	Other Diseases of this Class.	Old Age and Debility, 904 to 905.	Poisons, 906 to 991.	Injuries, 992 to 1146, and Blisters of Feet, 1148.	Punishment.	All other Diseases.	Total.
																Diarrhœa.	Dysentery.	Other Diseases of this Class.												
Remained sick on 1st January 1873	...	70	136	...	1	72	21	1	4	17	11	7	11	4	38	17	20	15	3	4	15	22	39	60	36	43	1	45	...	3	716
Admitted during the year ...	365	4241	7,143	2	261	1,386	249	7	61	224	209	45	905	84	728	677	752	742	80	51	164	517	664	2,074	617	681	30	1,481	22	171	24,633
Total Treated ...	365	4311	7,279	2	262	1,458	270	8	65	241	220	52	916	88	766	694	772	757	83	55	179	539	703	2,134	653	724	31	1,526	22	174	25,349
Discharged cured during the year	358	4215	6,947	...	252	1,254	220	4	42	118	161	30	863	51	603	657	717	691	62	43	156	508	661	2,026	546	507	27	1,458	18	138	23,333
Discharged "otherwise" during the year	5	71	142	...	2	132	27	...	8	67	38	22	32	26	97	15	29	38	7	5	12	13	22	26	55	163	2	21	3	26	1,106
Died in hospital during the year.	1	8	25	2	5	1	...	2	7	20	10	...	...	7	23	9	12	8	7	...	...	1	...	...	3	10	...	3	...	1	165
Remaining on 31st December 1873	1	17	165	...	3	71	23	2	8	36	11	...	21	4	43	13	14	20	7	7	11	17	20	82	49	44	2	44	1	9	745
Total ...	365	4311	7,279	2	262	1,458	270	8	65	241	220	52	916	88	766	694	772	757	83	55	179	539	703	2,134	653	724	31	1,526	22	174	25,349
Invalided during the year ...	...	9	10	...	...	54	17	1	...	34	13	7	17	26	28	1	1	10	...	...	2	2	6	4	55	254	9	4	...	14	578
Obtained sick leave during the year	1	13	62	...	2	66	15	...	7	46	22	4	10	14	61	13	31	18	3	5	2	5	11	10	16	95	...	3	...	4	540
Died out of hospital during the year	1	2	7	...	1	3	2	1	...	9	2	2	...	9	15	4	4	1	1	...	...	1	...	...	4	9	...	5	...	26	109

N.B.—The numbers quoted are those of the "Nomenclature of Diseases."

Return of Non-commissioned Officers sent on Sick Certificate during the past four years ending 31*st December* 1873 *and the Result in each Case.*

1870.

Regiment.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.
1st Regt. L. C. ...	3	...	...	...	...	1	...
2nd do. do. ...	1	...	...	...	...	...	...
3rd do. do. ...							
4th do. do. ...	4	1	...	...	...	...	...
Body Guard ...	5	2	...	...	...	...	...
1st Regt. N. I. ...	27	2	...	...	...	...	...
2nd do. do. ...	10	1	...	...	...	2	...
3rd do. do. ...	4	8	...	...	...	...	...
4th do. do. ...	10	...	...	...	1	...	...
5th do. do. ...							
6th do. do. ...	21	5	...	...	...	1	...
7th * do. do. ...	31	...	...	1	4	...	2
8th do. do. ...							
9th do. do. ...	7	...	...	...	...	1	...
10th do. do. ...	23	...	...	...	1	2	...
11th do. do. ...							
12th do. do. ...	35	8	...	...	...	7	...
13th do. do. ...	9	2	...	...	...	...	...
14th do. do. ...	7	1	...	...	...	...	...
15th do. do. ...							
16th do. do. ...							
17th do. do. ...	5	...	...	...	...	...	...
19th do. do. ...	4	2	...	...	...	...	...
20th do. do. ...	15	1	...	...	2	2	...
21st do. do. ...	17	7	...	...	...	2	...
22nd do. do. ...	7	1	...	...	...	...	...
23rd do. do. ...	12	6	...	...	...	3	1
24th do. do. ...	...	...	...	...	...	...	...
25th do. do. ...	22	7	...	...	...	1	...

1871.

Regiment.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.
1st Regt. L. C. ...	5	2	...	...	...	1	...
2nd do. do. ...	4	2	...	1	...	...	...
3rd do. do. ...					Return not received.		
4th do. do. ...	1	3	...	...	...	...	...
Body Guard ...	7	9	...	...	...	...	...
1st Regt. N. I. ...	18	28	...	1	...	...	...
2nd do. do. ...	12	8	...	...	1	2	...
3rd do. do. ...	9	1	...	...	...	...	...
4th do. do. ...	4	7	...	...	...	2	...
5th do. do. ...					Return not received.		
6th do. do. ...	13	9	...	...	...	1	...
7th * do. do. ...	88	41	...	...	41	5	...
8th do. do. ...					Return not received.		
9th do. do. ...	9	5	...	...	1	3	...
10th do. do. ...	10	14	...	...	...	1	...
11th do. do. ...					Return not received.		
12th do. do. ...	38	2	...	1	1	3	...
13th do. do. ...	12	6	...	...	...	2	...
14th do. do. ...	18	5	...	...	...	2	1
15th do. do. ...					Return not received.		
16th do. do. ...					Return not received.		
17th do. do. ...	...	4	...	...	...	...	...
19th do. do. ...	17	7	...	...	...	4	...
20th do. do. ...	15	10	...	...	...	3	...
21st do. do. ...	1	7	...	...	...	2	...
22nd do. do. ...	1	6	...	...	1	...	...
23rd do. do. ...	4	1	...	...	...	4	...
24th do. do. ...	3	...	...	...	...	...	...
25th do. do. ...	5	11	...	...	...	4	...

1872.

Regiment.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.
1st Regt. L. C. ...	6	5	...	...	...	1	...
2nd do. do. ...	...	2	...	...	...	...	...
3rd do. do. ...							
4th do. do. ...	2	1	...	...	...	1	...
Body Guard ...	5	5	...	...	...	...	...
1st Regt. N. I. ...	14	13	...	...	...	1	...
2nd do. do. ...	6	6	...	...	2	3	1
3rd do. do. ...	35	8	...	...	2	3	...
4th do. do. ...	10	4	...	...	...	...	...
5th do. do. ...							
6th do. do. ...	14	19	...	...	...	1	...
7th * do. do. ...	34	34	...	1	8	7	1
8th do. do. ...							
9th do. do. ...	10	4	...	...	3	...	...
10th do. do. ...	22	9	...	1	...	5	...
11th do. do. ...							
12th do. do. ...	40	46	...	1	6	4	...
13th do. do. ...	26	13	...	...	...	3	...
14th do. do. ...	23	10	...	...	1	7	...
15th do. do. ...							
16th do. do. ...							
17th do. do. ...	1	1	...	...	...	...	...
19th do. do. ...	33	11	...	...	1	2	...
20th do. do. ...	8	12	...	...	...	...	...
21st do. do. ...	2	...	...	...	1	...	...
22nd do. do. ...	2	2	...	...	...	...	...
23rd do. do. ...	8	7	...	...	...	1	...
24th do. do. ...	5	3	...	...	...	...	...
25th do. do. ...	3	4	...	...	...	1	...

1873.

Regiment.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.
1st Regt. L. C. ...	4	4	...	...	...	...	...
2nd do. do. ...	7	...	...	...	...	2	...
3rd do. do. ...							
4th do. do. ...	5	1	...	...	...	1	...
Body Guard ...	11	4	...	...	...	2	...
1st Regt. N. I. ...	4	5	...	...	...	...	...
2nd do. do. ...	2	2	...	...	...	...	...
3rd do. do. ...	10	30	...	...	...	3	...
4th do. do. ...	13	10	...	...	...	1	...
5th do. do. ...							
6th do. do. ...	1	9	...	...	...	2	...
7th * do. do. ...	45	30	...	...	1	2	...
8th do. do. ...							
9th do. do. ...	8	7	...	...	...	3	1
10th do. do. ...	41	5	...	...	...	5	...
11th do. do. ...							
12th do. do. ...	19	30	...	...	1	1	...
13th do. do. ...	9	23	...	...	...	2	...
14th do. do. ...	32	14	...	...	1	4	...
15th do. do. ...							
16th do. do. ...							
17th do. do. ...	4	...	...	...	...	1	...
19th do. do. ...	21	27	...	...	1	...	1
20th do. do. ...	27	10	...	2	1	1	...
21st do. do. ...	1	...	...	...	2	...	...
22nd do. do. ...	2	...	...	...	...	1	...
23rd do. do. ...	8	3	...	...	1	...	...
24th do. do. ...	6	2	...	...	2	3	...
25th do. do. ...	16	2	...	...	1	...	...

* The returns from this corps are of doubtful accuracy.

Return of Non-commissioned Officers sent on Sick Certificate during the past four years ending 31st December 1873 and the Result in each Case.—(Continued).

Regiment.	1870.							1871.							1872.							1873.						
	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.	Number sent on Sick Leave.	Returned to Duty.	Leave extended.	Deserted at End of Leave.	Pensioned at End of or during Leave.	Died on Leave.	Discharged Service without Pension.
26th Regt. N. I..	6	2	...	...	...	...	...	7	9	...	...	...	...	...	7	5	...	...	...	...	...	4	7	...	...	...	...	...
27th do. do. ...	16	4	...	...	...	2	...	15	16	...	...	2	...	...	94	15	...	...	1	12	...	21	35	...	...	1	11	...
28th do. do. ...	22	13	...	...	1	...	...	15	11	...	1	...	1	...	15	6	...	...	1	1	...	9	18	...	...	...	...	...
29th do. do. ...	40	7	...	...	4	3	...	18	22	...	...	1	1	1	8	15	...	...	1	1	...	4	6	...	...	...	2	...
30th do. do. ...	22	3	...	...	...	2	...	28	23	...	...	...	2	1	14	18	...	...	...	2	1	9	12	2	...	...	2	...
31st do. do. ...	28	5	...	...	...	...	1	15	22	...	...	...	2	1	21	15	...	...	2	2	1	4	10	...	...	2	1	...
32nd do. do. ...	21	...	...	...	...	...	...	5	18	...	...	1	...	...	13	7	...	...	...	3	...	22	8	...	...	...	4	...
33rd do. do. ...												Return not received.																
34th do. do. ...	5	2	...	...	...	1	..	16	5	...	...	...	...	...	8	15	...	...	1	3	...	17	6	...	...	...	4	...
35th do. do. ...	18	1	...	...	...	4	...	14	21	...	...	...	1	...	13	6	...	...	...	3	...	13	8	...	...	...	1	...
36th do. do. ...	40	6	...	...	1	...	...	32	10	...	...	...	4	...	37	56	...	...	1	1	...	35	35	...	...	2	2	...
37th do. do. ...	12	...	...	...	...	3	...	12	3	...	...	...	2	...	33	14	...	...	...	1	...	7	29	...	1	1	5	1
38th do. do. ...	49	...	...	...	...	10	...	9	33	...	...	1	3	1	8	10	...	...	...	3	...	28	7	...	...	...	4	1
39th do. do. ...												Return not received.																
40th do. do. ...	3	...	...	...	...	1	...	6	1	...	...	...	1	...	6	8	...	...	...	3	...	6	...	...	...	...	1	...
41st do. do. ...	8	3	...	...	...	...	...	9	4	...	...	1	1	...	8	4	...	...	3	2	...	9	3	...	...	1	3	...
Sappers & Miners.	10	2	...	...	1	...	...	24	15	...	...	5	1	...	31	21	...	...	2	3	1	14	19	...	...	...	4	...
Native Details ...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	3	1	...	...	...	...	...	...	2	...	...	...	...	...
Total ...	581	97	...	1	15	48	4	519	403	...	4	56	58	5	628	435	...	3	36	80	5	498	423	2	3	18	78	4

Summary of the Army Statistics for the year 1873.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Average Daily Strength present throughout the year.	Total Treated in Hospital.	Ratio per Cent. of the Treated to the Average Strength.	Average Daily Sick per Cent. to the Average Daily Strength.	Deaths in Hospital.	Ratio of Deaths in Hospital per Cent. to Average Strength.	Ratio of Deaths in Hospital per Cent. to Treated.	Deaths out of Hospital, *i.e.*, in the Station or Guard, on Command, on Leave, or Furlough.	Strength of the Army as borne on the Regimental Rolls, 31st December 1872, 29,577. 31st December 1873, 30,157. Mean 29,867.	Total Deaths during 1873, in and out of Hospital, Columns 5 and 8.	Ratio per Cent. to the Mean Strength Column 9. Of Total Mortality.	Of Invalided and Discharged the Service for Disease.	Of Men sent away from Head-quarters for Change of Climate.	Ratio per Cent. to Strength of Mortality of Hindus, in and out of Hospital.	Ratio per Cent. to Strength of Mortality of Mussulmans, in and out of Hospital.	Ratio per Cent. to Strength of Mortality of Christians, in and out of Hospital.	Average Number of Consecutive Nights in Bed.
Cavalry ... 1,071.	920	85·90	2·70	7	0·65	0·76	7	1202·5 Mean	14	1·16	2·66	2·24	[145] 0·68	[976] 1·33	[73] ...	4·12
Infantry ... 27,091.	24,429	90·17	2·91	158	0·58	0·64	102	28664·5	260	0·90	1·90	1·78	[16,382] 0·95	[10,094] 0·85	[2,487] 0·72	4·87
													Ratio per Cent. of Deaths to the Strength of			
Totals and Averages of all ... ...28,162.	25,349	90·01	2·91	165	0·58	0·65	109	Mean. 29867	274	0·91	1·93	1·80	Hindus. 0·94	Mussulmans. 0·89	Christians. 0·70	

N.B.—The figures in brackets represent strength.